April 1959

ilway TRACK and STRUCTURES

AREA Board of Direction

p. 23

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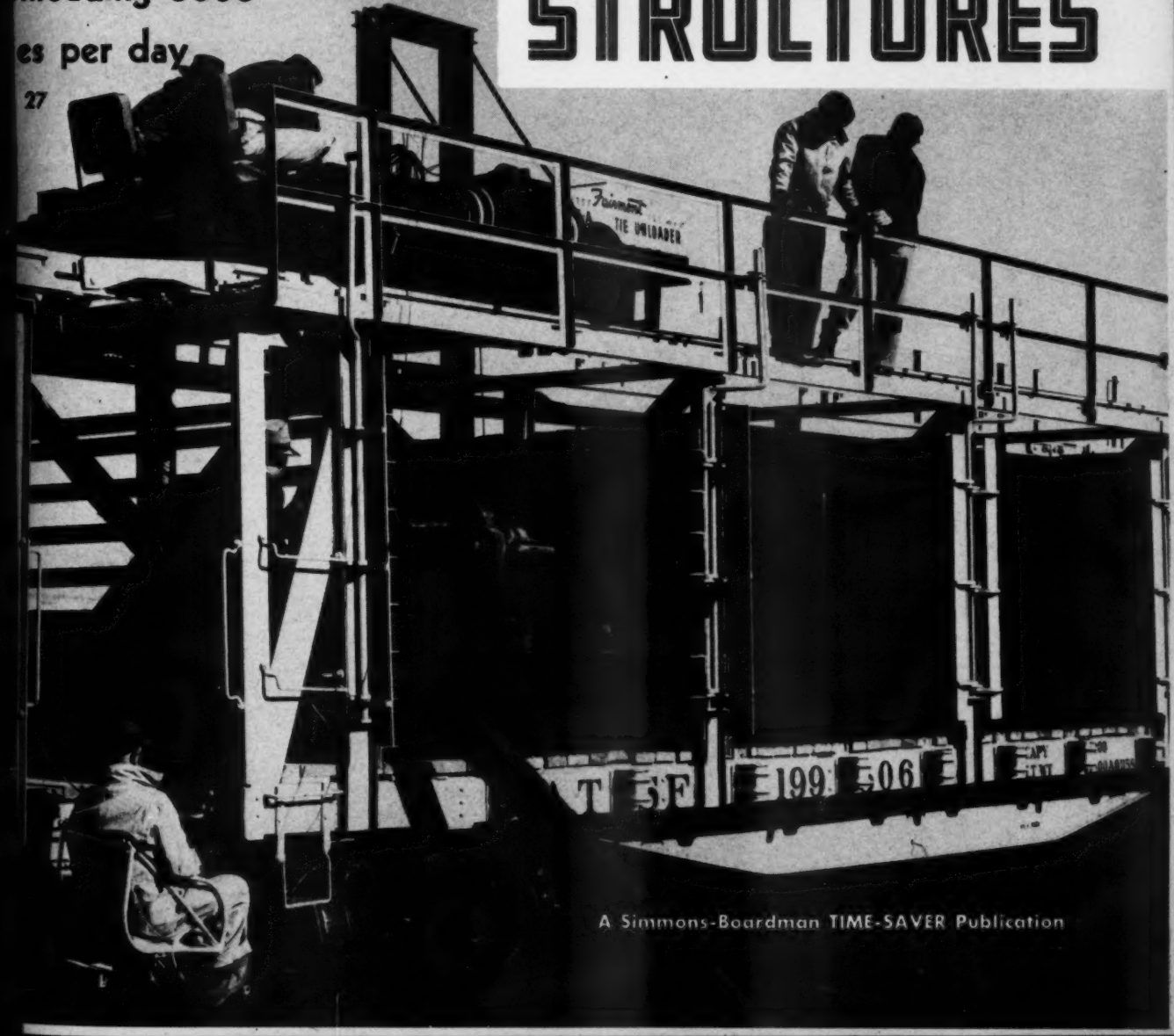

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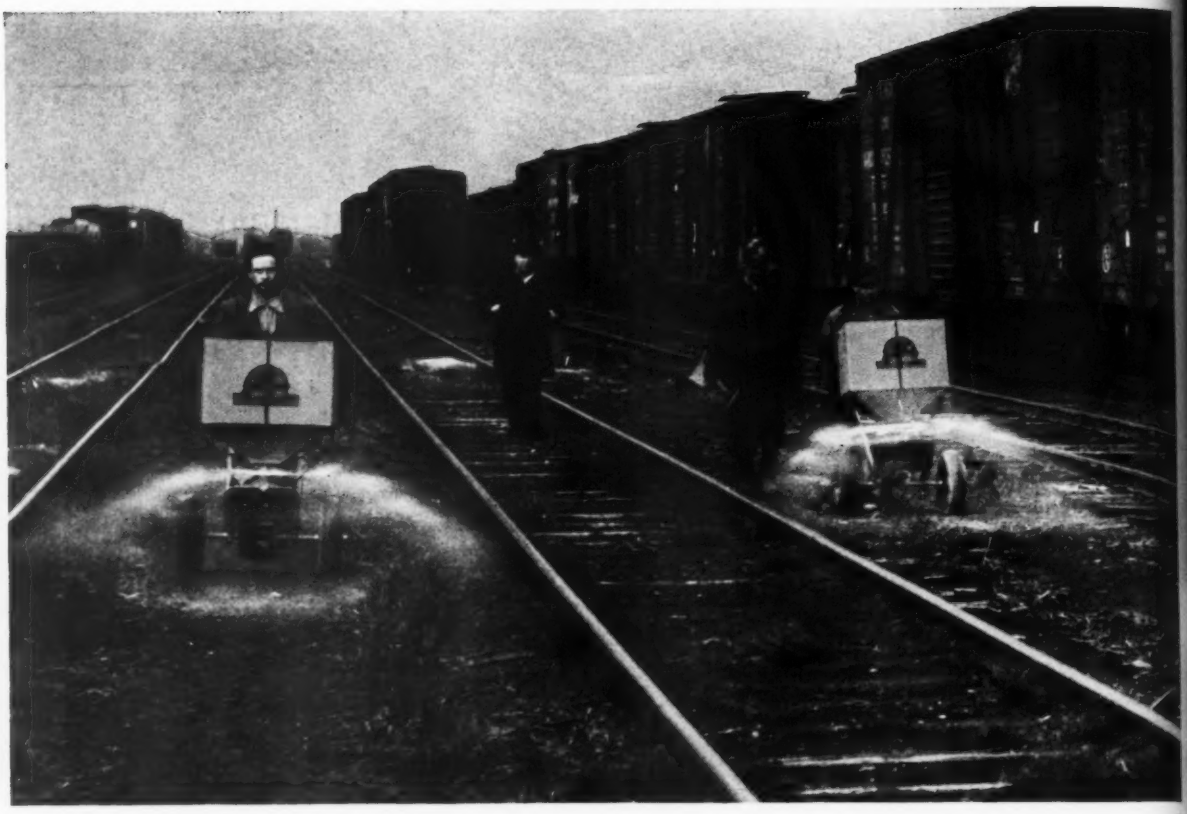

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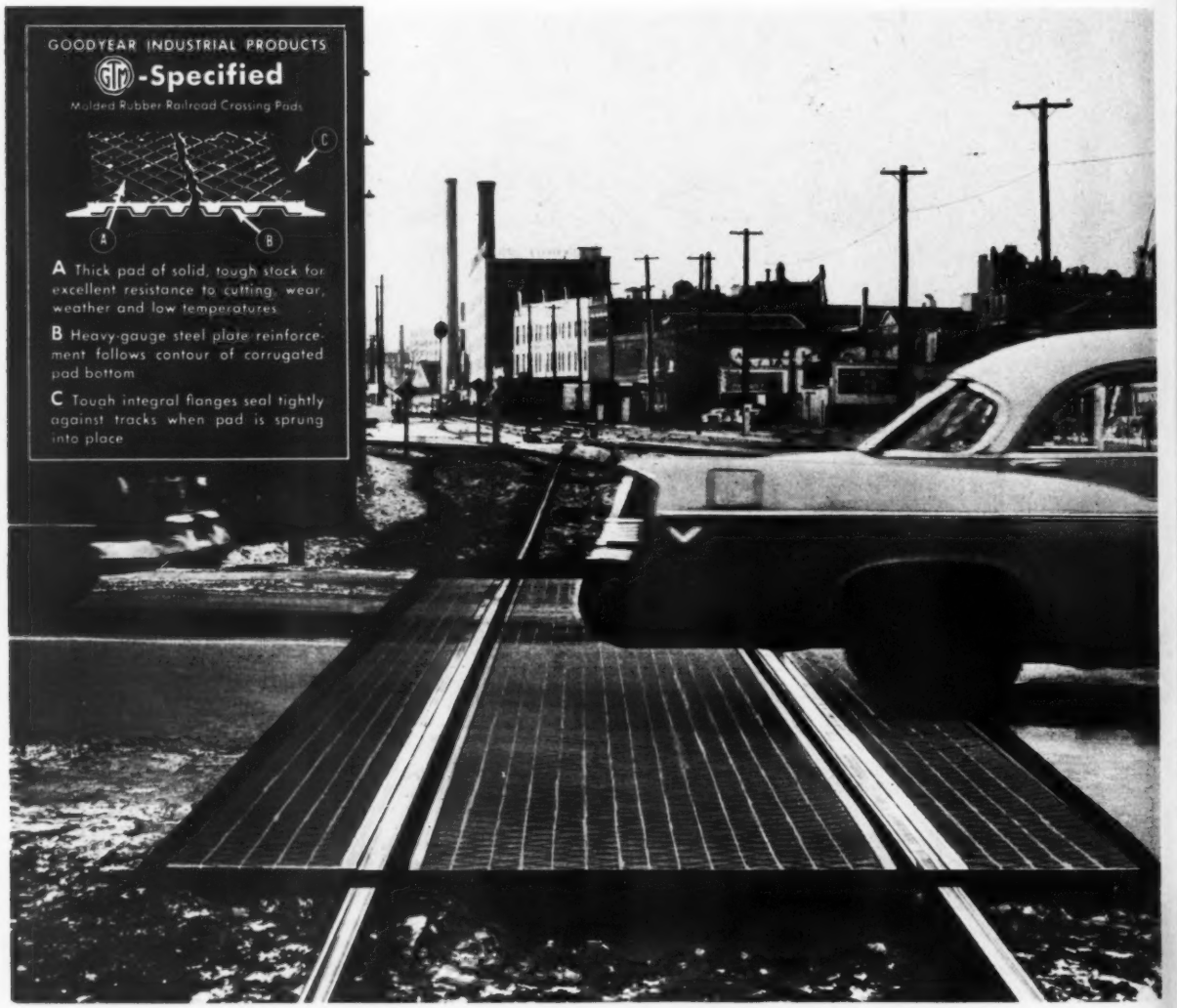
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GOODYEAR

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in this issue:

vol. 55, no. 4 APRIL, 1959

AREA convention story in pictures 23

Four pages of photographs showing people and events at the association's 58th annual meeting at Chicago last month.

Unloading 6000 ties per day 27

That is what the Santa Fe is able to do with a new mechanical tie unloader operating atop specially equipped cars.

Ballast renewal in close quarters 30

Some unusual equipment and careful timing were required to do this job on an elevated line of a rapid transit system.

Better, faster ballast unloading with new doors 32

Cars converted for big ballasting job in Mexico are equipped with hopper doors with a new type control mechanism.

Infra-red heating for railroad buildings 34

Report by AREA committee discusses the characteristics of this form of heat generation and its use in railroad buildings.

DEPARTMENTS

News about people 10

Biographical Briefs 10

News notes 13

Manufacturers' helps 15

Dear reader 17

News briefs in pictures 36

Whats the answer? 37

Association news 58

Supply trade news 60

DON'T MISS . . .

Increased productivity and efficiency of the Santa Fe's bridge and building forces are expected to result from a "B&B maintenance conference" held recently at Amarillo, Tex. Some 100 engineers and B&B men from all over the system attended the two-day meeting.

. . . in the May issue

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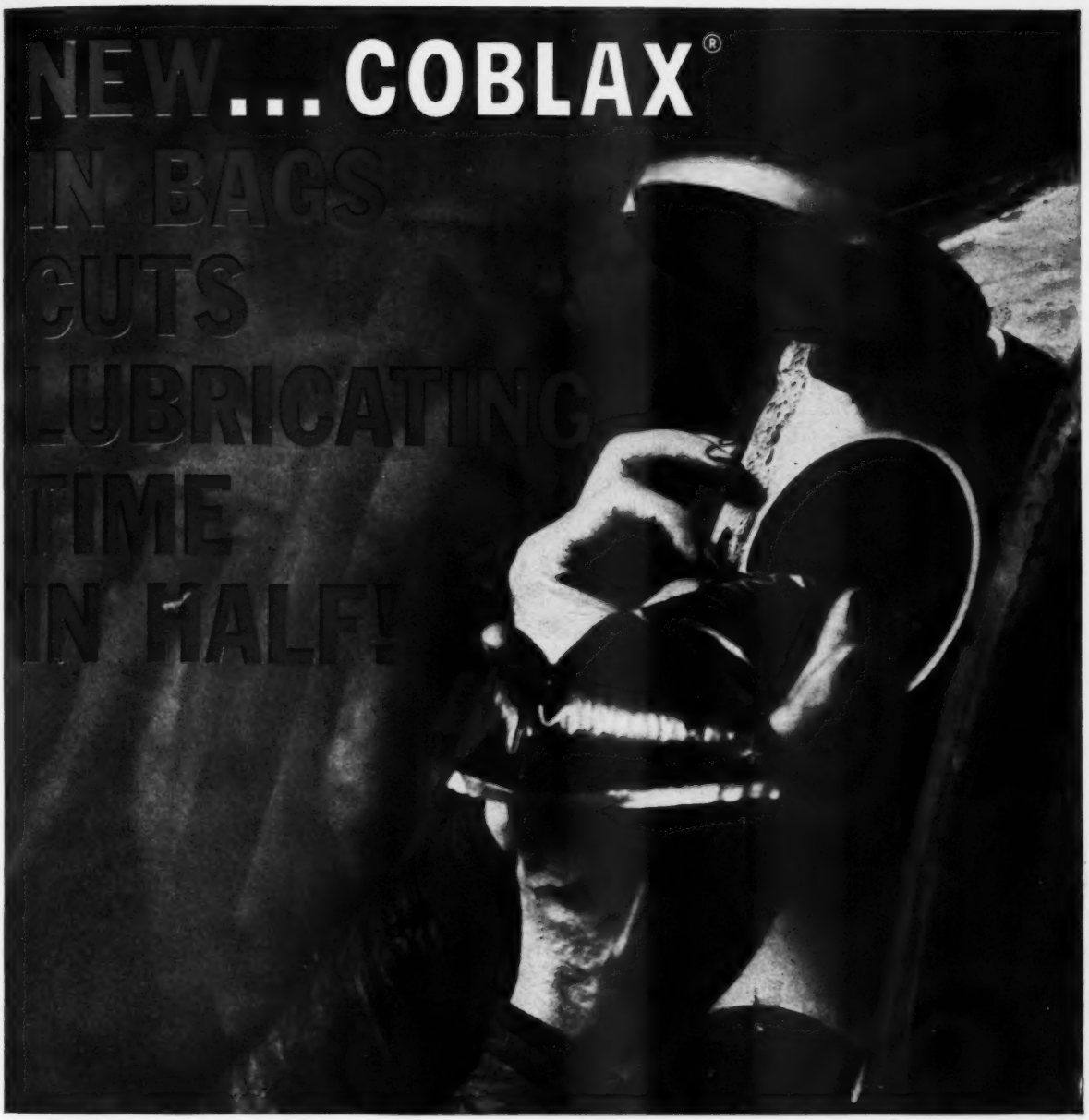

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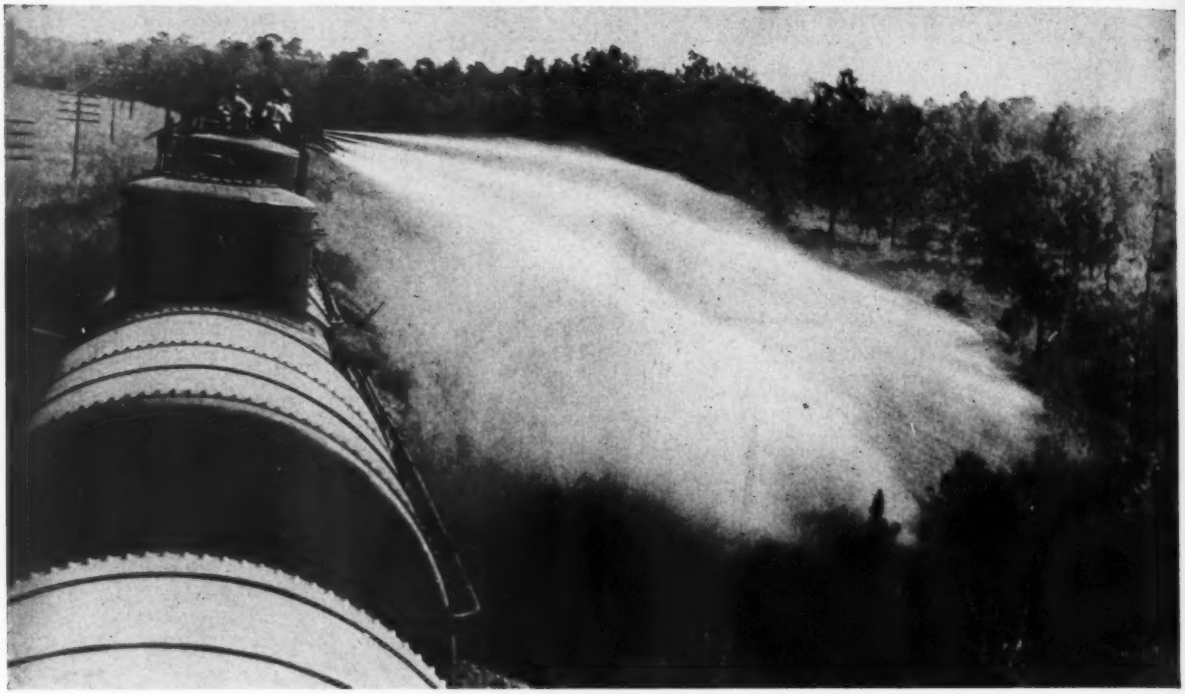

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Costs for cutting brush have been as high as $600 per acre. You can, however, spray brush with chemicals for as little as $15 per acre and obtain a more satisfactory, longer lasting control. May we suggest your consideration of our low-cost brush control program.

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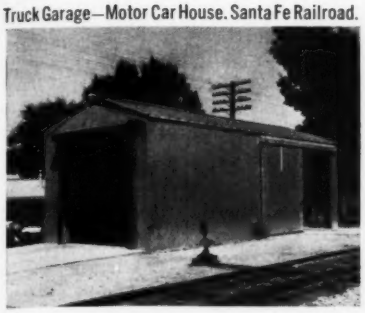
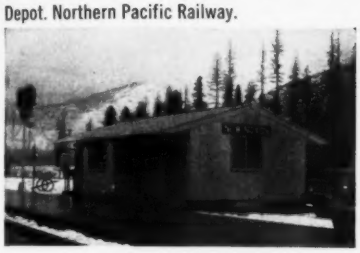
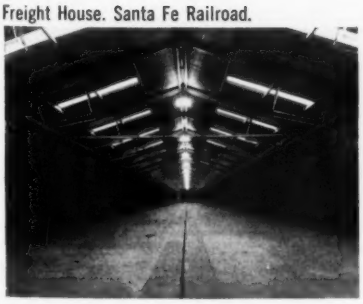


Depot. Northern Pacific Railway.

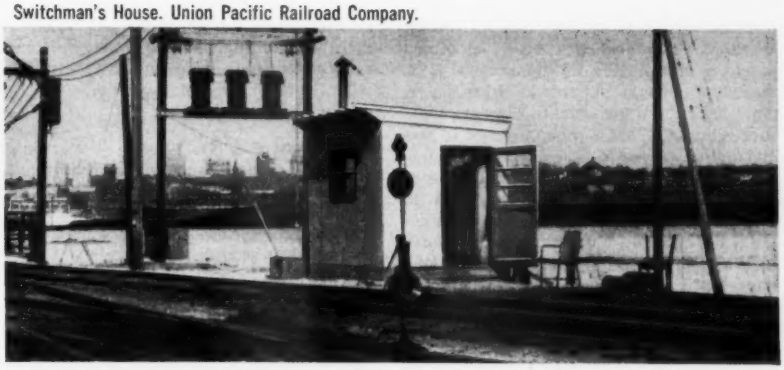


Freight Platform. Atlantic Coast Line Railroad.

Freight House. Santa Fe Railroad.



Switchman's House. Union Pacific Railroad Company.



Office Building. Louisville & Nashville Railroad.

Wheel House. Western Pacific Railroad Company.

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News about people

CANADIAN NATIONAL—J. L. Cann, engineer maintenance of way, Central region, Toronto, Ont., has been appointed project director in charge of the terminal project there. **G. G. Baird** has been appointed property coordinator of the project. **E. E. MacPhail,** division engineer at Hornepayne, Ont., has been transferred to Capreol, Ont., succeeding **A. E. Monaghan,** assigned to special duties. **Bryce F. Keays,** division engineer at Moncton, N. B., has been appointed budget officer of the Atlantic region. **R. V. McGauley,** assistant bridge & building master at Port Arthur, Ont., has been promoted to bridge and building master at Fort William, Ont.

CANADIAN PACIFIC—W. A. Smith, assistant district engineer at Calgary, Alta., has been promoted to assistant engineer of track with headquarters at Montreal.

FRISCO—The following appointments have been made: **R. E. Catlett** as division engineer, Red River division, Fort Worth, Tex.; **D. F. Holt** as roadmaster, 35th track division, Fort Worth; **V. L. Leak** as general foreman bridges and buildings and water service, Tulsa, Okla.

E. M. Cheatham, roadmaster at Tulsa, Okla., has been transferred to Sapulpa, Okla. **F. L. Richardson, Sr.,** assistant general foreman bridges and buildings and water service at Enid, Okla., has retired after more than fifty years of service.

ILLINOIS CENTRAL — L. E. McCullough, instrumentman at Vicksburg, Miss., has been promoted to assistant to division engineer with headquarters at New Orleans, La., succeeding **H. F. Longhelt** who has been advanced to division engineer, Iowa east division, Waterloo, Iowa. Mr. Longhelt succeeds **C. E. Weller** who has been promoted to assistant engineer maintenance of way, with headquarters at Chicago, succeeding **G. M. O'Rourke** who retired February 28 after 54 years of service. **C. P. Davis,** assistant engineer at Chicago, has been appointed assistant supervisor, maintenance of way department, on the Memphis division with headquarters at Memphis, Tenn.

JERSEY CENTRAL—Joseph P. Leahy, assistant engineer at Jersey City, N. J., and **Thomas J. Reagan,** supervisor work equipment at Elizabethport, have each been promoted to assistant engineers, maintenance of way. **Alfred Wisman,** supervisor welding at Jersey City, has been appointed supervisor work equipment and welding. **Louis Mayersky,** foreman carpenter, has been promoted to master carpenter succeeding **John F. Leonard,** retired.

LOUISVILLE & NASHVILLE—John D. Leinart has been appointed assistant supervisor bridges and buildings with headquarters at Mobile, Ala., succeeding **Calvan L. Morris** who has been promoted to supervisor bridges and buildings there, who in turn succeeds **James A. Carpenter** who has retired after nearly 50 years of service. **R. H. Campbell,** assistant engineer in the office of the special engineer at Louisville, Ky., has been appointed assistant engineer valuation there, succeeding **David P. Bibb,** deceased. **Artie M. Stephens,** track supervisor at Belleville, Ill., has retired after nearly 51 years of service.

MINNEAPOLIS & ST. LOUIS — Warren L. Waleen, engineer signaling and communications, has been promoted to chief engineer with headquarters at Minneapolis, Minn., succeeding **S. J. Owens** who has been promoted to general manager.

NEW YORK CENTRAL—Richard H. McDonald, instrumentman at Mattoon, Ill., has been promoted to assistant engineer there.

NICKEL PLATE—Leroy J. Goodman, assistant engineer at Cleveland, Ohio, has been promoted to division engineer at Conneaut, Ohio, succeeding **E. R. Taylor** who has retired after 43 years of service. **E. F. Manley** and **Paul Montgomery** have been promoted to assistant engineers with headquarters at Cleveland.

NORFOLK & WESTERN—E. C. McCoy, inspector, has been promoted to assistant engineer at Roanoke, Va., succeeding **J. B. Anderson** who has been promoted to resident engineer there. Mr. Anderson succeeds **V. D. Johnson,** retired.

NORTH WESTERN—B. R. Meyers, chief engineer, has been promoted to vice-president and chief engineer with headquarters, as before, at Chicago.

PENNSYLVANIA—The following appointments have been made: **D. W. Curtiss** as assistant supervisor track at Lancaster, Pa.; **R. J. Ruby** as office engineer at Philadelphia.

SOUTHERN—Robert E. Price, assistant track supervisor at Greensboro, N. C., has been promoted to track supervisor at Winston-Salem, N. C., succeeding **Luther E. Walke, Jr.,** who has been appointed trainmaster at Strasburg, Va. **Harley E. Clevenger,** assistant track supervisor at Knoxville, Tenn., has been promoted to track supervisor there. **Eugene D. Miller,** assistant supervisor at Birmingham, Ala., has been promoted to track supervisor at Selma, Ala. **F. E. Golladay,** assistant bridge and building supervisor at Birmingham, Ala., has retired after 48 years of service.

Lloyd B. Shelton has been appointed supervisor work equipment at Charlotte, N. C., succeeding **Burton H. Steele** who has been transferred to Greenville, S. C., in the place of **Samuel L. McManus.** Mr. McManus has been promoted to assistant superintendent, roadway shop, Charlotte, succeeding **William R. Jacobs** who in turn has been promoted to assistant to superintendent maintenance equipment there. Mr. Jacobs succeeds **Oscar T. Harmon, Jr.,** who has been promoted to superintendent, roadway shop, Charlotte.

Biographical briefs

G. M. O'Rourke, 70, who recently retired as assistant engineer maintenance of way of the Illinois Central at Chicago (announced elsewhere in this issue), was born at Chicago and received his higher education at the Armour Institute of Technology. Mr. O'Rourke entered the service of the Illinois Central in 1905 in the purchasing department. The following year he transferred to the maintenance-of-way department where he served successively as chainman, rodman, masonry inspector, instrumentman, resident engineer and chief draftsman before being advanced to assistant engineer. Mr. O'Rourke was later promoted to track supervisor and in 1919 was further advanced to roadmaster. He was subsequently advanced to division engineer and in 1929 he was promoted to district engineer. In 1941 he was further promoted to assistant engineer maintenance of way, the position he held at the time of his recent retirement. Mr. O'Rourke is a past president of both the American Railway Engineering Association and the Maintenance of Way Club of Chicago.

E. A. Graham, 48, who was recently promoted to assistant chief engineer on the Colorado & Southern and the Fort Worth & Denver (both subsidiaries of the Burlington Lines) at Denver, Colo. (*RT&S*, Jan., p. 10), was born at Lead, S. D., and received his higher education at the South Dakota School of Mines. He entered railroad service in 1936 on the Burlington as a rodman and draftsman at Lincoln, Neb., being promoted to instrumentman there two years later. In 1946 he was advanced to division engineer at Alliance, Neb., and was later transferred to Lincoln. Mr. Graham was appointed office engineer in 1954, the position he held at the time of his recent promotion.

R. F. Beck, 35, who was recently promoted to assistant chief engineer of the Elgin, Joliet & Eastern at Joliet, Ill. (*RT&S*, Jan., p 10), was born at Remsen, Iowa, and graduated from Iowa State College in 1948 with a Bachelor of Science degree. Mr. Beck

(Continued on page 52)

G. M. O'Rourke
IC

E. A. Graham
C&S

Now... controlling vegetation is easier-cheaper-

with **UREABOR®** weed and grass killer

UREABOR can prove to be your most practical way of keeping any area weed-free! It offers all the features you want in a weed killer... convenience, safety, economy, and lasting effectiveness. With this granular dust-free material, one easy application—dry—at low rates of 1 to 2 lbs. per 100 sq. ft. gives you full season control.

UREABOR is a specially compounded formulation of sodium borates and substituted urea. It is a highly efficient weed killer that is nonflammable, noncorrosive to ferrous metal, and nonpoisonous when used as directed. It is always ready for use; there is nothing to mix—no water to haul.

UREABOR can be applied to small areas by hand. For treating larger areas, special spreaders in hand-operated and power-driven models are available.

UREABOR can protect your timber structures, yards, signals, and buildings from fire-hazardous weeds easier and cheaper than any other way we know. Write for more information.

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Pacific Coast Borax Company Division

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Control of vegetation for a full year in areas such as this can now be accomplished for as little as 30¢ per 100 sq. ft.

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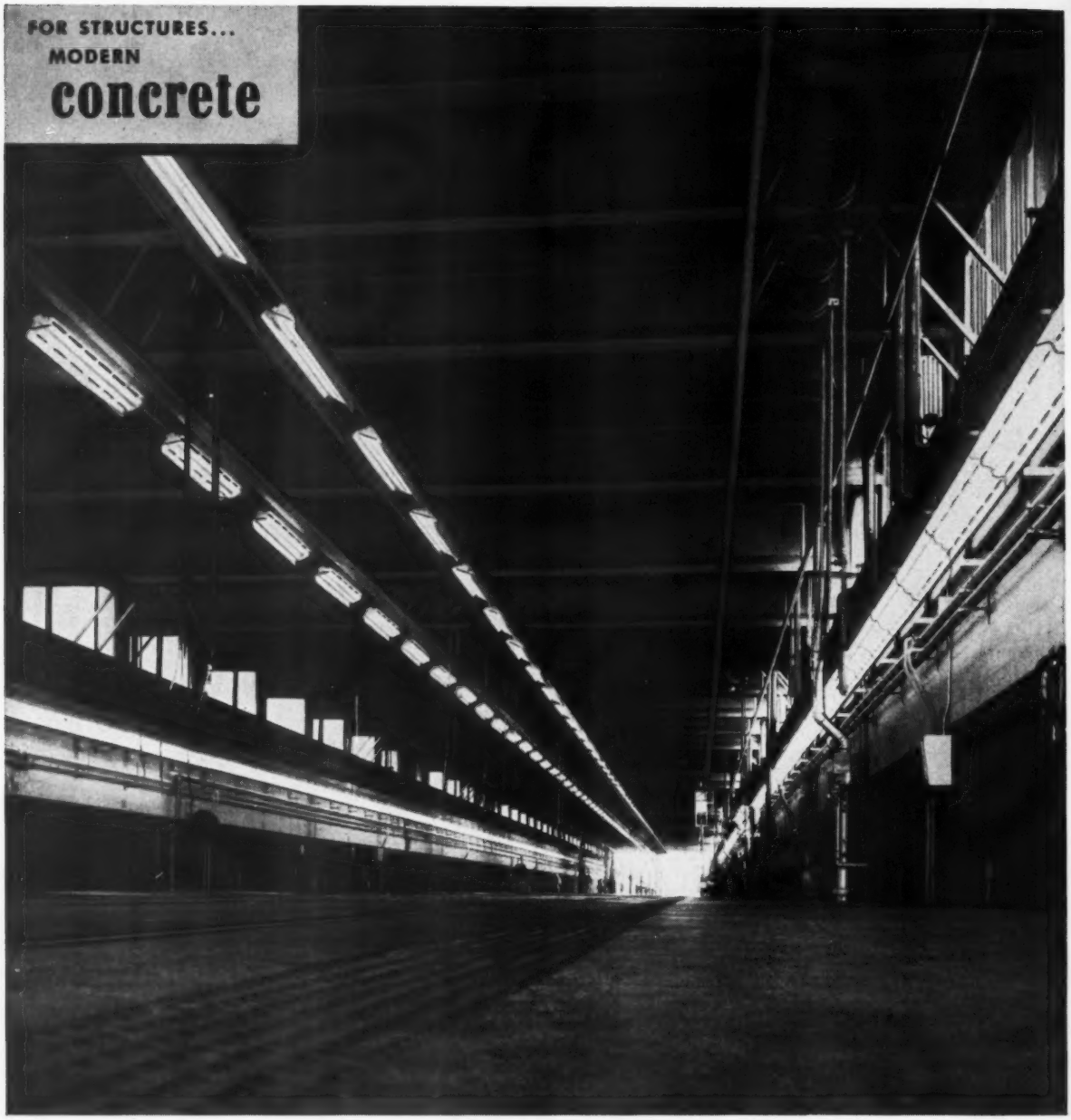

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PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

News notes...

. . . a résumé of current events throughout the railroad world

Net income of Class I railroads for January is estimated at $22 million—up 22.2 per cent from January 1958's $18 million. Net railway operating income for the month was $36,160,974 compared with $31,914,879, an increase of 13.3 per cent. Thirty-six Class I roads failed to earn their fixed charges in January.

•

Railroad equipment orders, spurred by an upsurge in railroad business, are soaring and a buying spree, surpassing the most optimistic forecasts of a few months ago, may be in the making. So far this year, railroads have placed orders for equipment costing some $325 million. Biggest increase is in freight-car orders. More freight cars have been ordered in the first 11 weeks of 1959 than were ordered in all of recession-ridden 1958.

•

President Daniel P. Loomis tells AREA that, if railroads are to get funds necessary for reaping the benefits of technological progress, they must have relief from taxation and featherbedding. He pointed out that the average tax write-off period for railroad capital facilities is a "wholly unrealistic" 40 years. By contrast, he said, investment in air-planes is depreciated over five years and the cost of heavy trucks is written off in seven years. Mr. Loomis repeated his plea that leaders of train-operating brotherhoods join management in an all-out effort to modernize antiquated work practices.

•

While teamsters are complaining of the lack of job-security because of railroad piggyback operations, more railroads are testing new highway-rail vehicles. Chesapeake & Ohio has Railvan II which may be tested in daily service. The Milwaukee Road has extended its Flexi-Van service into Seattle and Tacoma. And the Nickel Plate is testing a pilot model of an articulated piggyback car which is capable of carrying two highway trailers. However, the lack of standardization, according to ICC Commissioner Anthony Arpaia, is slowing up the development of coordinated through piggyback service.

•

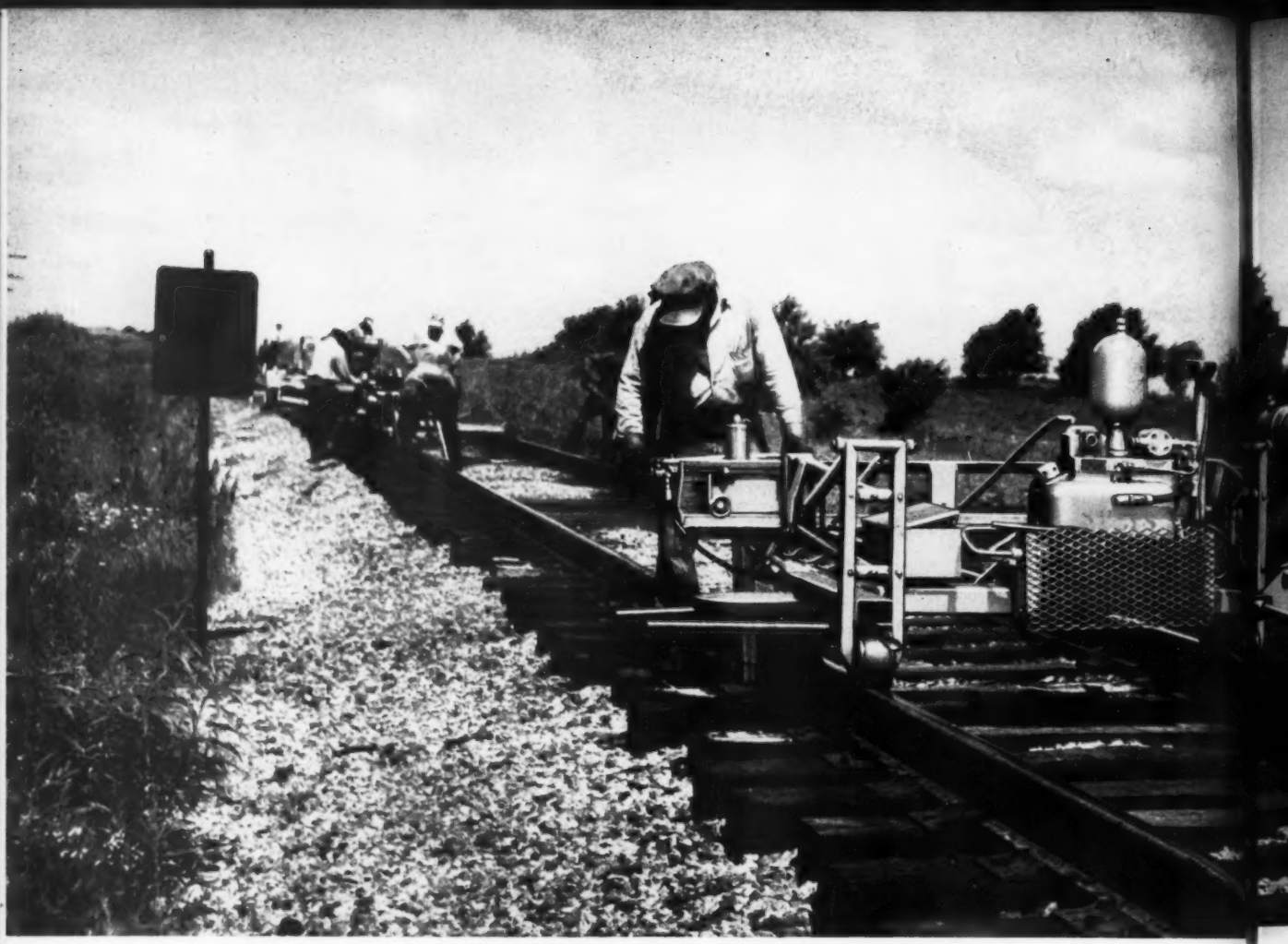
Demands for a 12-per cent pay increase, effective November 1, have been made by three operating brotherhoods. Because the demands have been made so far in advance, some observers believe that the move was intended to divert the spotlight from the railroads' drive to revise restrictive working rules.

•

Money is now available for the Senate Commerce Committee's transport study. The amount of $290,000 was provided when the Senate passed Senate Resolution 29. Investigations to be made as part of the study will cover matters left untouched by the 1958 Transportation Act. These include proposals for user charges on publicly provided transport facilities, the railroads' call for more freedom to operate other modes of transport, government policy on mergers, and the passenger-service problem.

•

The average straight-time wage rate for all railroad employees is now $2.59 per hour. With officers and their staffs excluded, the average drops to $2.53. These figures reflect the eight-cents-per-hour increase of last November 1.



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One operator pulls up to 20 spikes per minute

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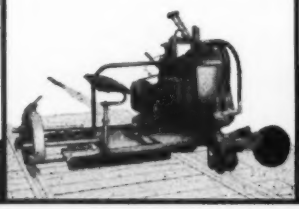
One man can easily operate the W84 and pull up to 20 spikes per minute. The pulling cylinder rolls back and forth in the rectangular track allowing the unit to work both sides of both rails. And it's completely safe because the operator is never in direct contact with the pulling mechanism.

The rugged machine operates at full capacity all day and is equipped for fast and easy setoffs. Lowering the pneumatic wheels lets two men remove the W84 from the track in two or three minutes and replace it just as quickly.

Whenever it's necessary to pull spikes, you'll find you can do it faster and more economically with a Fairmont W84. Write now for further information about the many advantages you get with this rugged spike puller.

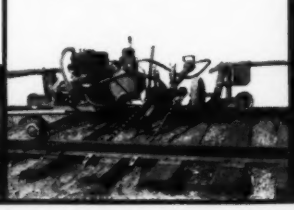
W86 SERIES B HYDRAULIC RAIL LIFTER makes the job of removing or inserting tie plates a quick and easy one.

W90 SERIES A TIE HANDLER inserts or removes ties quickly and requires only two men for operation. Self-propelled.



W87 SERIES B TIE BED SCARIFIER digs new tie bed in less than a minute. Self-propelled, hydraulic operation, one-man control.

W68 SERIES A HYDRAULIC TIE REMOVER removes 60 ties per hour. Ruggedly built. Requires only two-man operation.



50

LEADER

FOR HALF A CENTURY

Over ninety railroads are using hundreds of Fairmont tie renewal machines

Fairmont

RAILWAY MOTORS, INCORPORATED

FAIRMONT, MINNESOTA

Helps from Manufacturers

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

BUMPING POSTS. A 4-page circular is available that describes and illustrates the Hayco Shock-Free Head for bumping posts. Circular 115 tells how the head is installed and how it performs its functions of reducing the impact of rolling stock. Drawings and pictures show the features of the new head. Engineering data are given as well as a list of the parts that make up the head. Included also are brief descriptions of the Converto portable dump unit, Hayco Lining Scope and Van-Packer Chimney. (Write: *The Brice Hayes Company, Dept. RTS, 6710 Northwest Highway, Chicago 31, Ill.*)

EARTHMOVING EQUIPMENT. An 8-page booklet is available which gives seventeen reasons for the working ability of Caterpillar D7, D6 and D4 tractors. The 3-color booklet is entitled "7 + 6 + 4 = 17" and is illustrated with on-the-job photographs of the three machines. Each of the seventeen features of the tractors are briefly described. One of the items lists the matched line of equipment that is available for use with the machines. (Write: *Caterpillar Tractor Company, Advertising Division, Dept. RTS, Peoria, Ill.*)

TRACK WHEELS. A new catalog is available which contains a stock list of the Bartlett & Snow line of track wheels and rollers. Catalog 34 contains specifications and data on single and double flanged, straight faced and self-oiling track wheels and rollers in a size range from 2 in. in diameter with a ⅞-in face to 36 in. in diameter with a 12⅛-in face. In addition, the stock lists give the pattern number, weight, dimensions and type of thread of the wheels and rollers. (Write: *The C. O. Bartlett & Snow Co., Dept. RTS, 6200 Harvard Ave., Cleveland 5, Ohio*)

SHEET EXPLOSIVE. A booklet is available which describes and illustrates how du Pont sheet explosive, Series EL-506, can be used for metal cutting or hardening or as a destructor. Its composition and physical properties are given as well as the nomenclature of the various designations within the series. The booklet describes, with pictures and sketches, the proper method of applying the sheet explosive to a surface. Included are the recommended types of adhesives for fastening the material to metal or plastic. The techniques employed when using EL-506A for metal cutting and as a destructor are given. Its application for metal hardening is briefly explained. Pictures show the explosive applied to a dipper tooth and a switch frog prior to detonation. (Write: *E. I. du Pont de Nemours & Co., Inc., Explosives Department, Sales Development Section, Dept. RTS, Wilmington 98, Del.*)

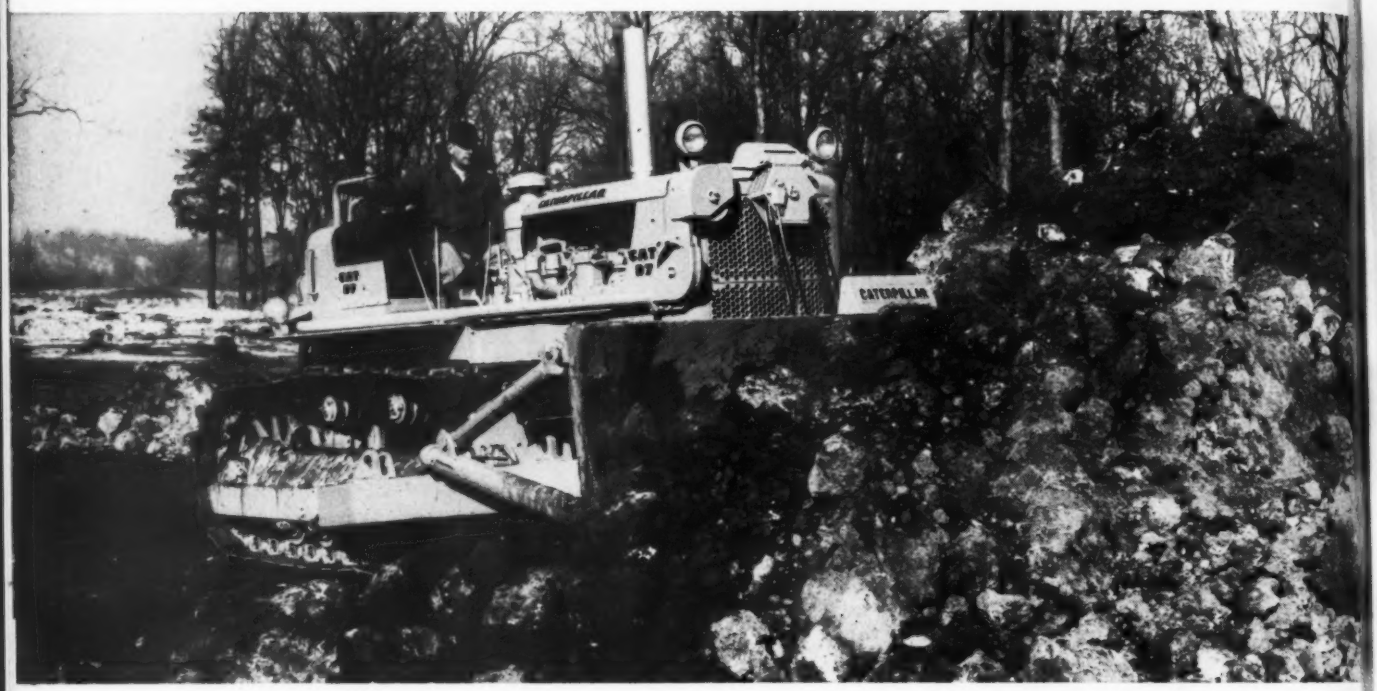
ROLLING DOORS. A 16-page booklet is available which describes and illustrates the Mahon line of rolling steel doors, grilles and shutters. The booklet, G-59, serves as a combination catalog, manual and guide. Pictures, drawings and tables of dimensions are given for sixteen types of doors which are available for exteriors, corridors, room partitioning, and firewall and vertical shaft openings. Specifications are given for manual or automatic power operation and standard or Underwriters'-labeled doors. Features of the doors are described and illustrated, such as special weathering, windlocks, fire retarding and other materials that are used for non-labeled or Underwriters'-labeled doors. (Write: *The R. C. Mahon Company, Rolling Steel Door Division, Dept. RTS, East 8-Mile Road, Detroit 34, Mich.*)

EQUIPMENT LEASING. A new booklet is available which describes the method of leasing maintenance equipment and rolling stock. One section of the booklet is devoted to the Morrison Plan method of leasing new maintenance-of-way equipment, tractors, trucks, construction equipment and mobile housing for work crews. Another section explains the International Railway Car Leasing plan of leasing reconditioned revenue freight cars. Included in the booklet are the advantages of leasing as opposed to ownership, how leasing works and the factors upon which the cost of leasing is based. (Write: *Morrison Plan, Inc. or International Railway Car Leasing Company, Dept. RTS, 812 Rand Building, Buffalo 3, N.Y.*)

PROJECT PAYDIRT* *pays off again*

NEW CAT D7 SERIES D TRACTOR

For higher production at lower operating cost



BY ANY comparison the new Cat D7 Series D Tractor is champ in its class. It packs 140 horsepower . . . matched with 80% more lugging ability than the previous model—for greater production. And it delivers this production at lower operating and maintenance costs. The payoff for you . . . increased performance that no other tractor in this power range can match.

Major improvements, developed by Caterpillar's Project Paydirt, affect the engine, power train and undercarriage. And the new Series D retains the exclusive Caterpillar Oil Clutch. It's time-tested; delivers up to 2,000 hours—one whole season—without adjustment.

For complete facts about the leader, see your Caterpillar Dealer. He's ready to give you the whole story on the new D7 Series D. And he'll arrange a demonstration on your job.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

* ***PROJECT PAYDIRT:*** Caterpillar's multi-million-dollar research and development program — to meet the continuing challenge of the greatest construction era in history with the most productive machines ever developed.

NEW ON THE D7 SERIES D

TURBOCHARGED ENGINE features 9% horsepower increase, 80% more tractor lugging ability. Optional in-seat starting is available. The payoff . . . more production!

DRY-TYPE AIR CLEANER removes at least 99.8% of all dirt and dust from engine intake air during every hour. Cleaner can be easily serviced in 5 minutes. Filter element can be re-used. The payoff . . . economical, convenient maintenance and longer engine life.

SERVICE-FREE TRACK ROLLERS, carrier rollers and idlers are lifetime lubricated. New load-carrying design increases roller life. The payoff . . . longer life, no on-the-job lubrication shutdowns.

PRESSURE-LUBRICATED POWER TRAIN insures complete circulation of filtered oil to transmission, bevel gear and pinion. To transmit increased power, power train components have greater strength. The payoff . . . longer gear life, trouble-free operation.

CATERPILLAR

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BORN OF RESEARCH
PROVED IN THE FIELD

Dear reader:

RAILWAY
TRACK and STRUCTURES

M/W progress—A lesson for railroad management?

Railway engineering officers attending the AREA convention last month quite probably returned to their jobs with their spirits at a higher level than when they left for the meeting. This was certainly the case if they listened to the major speeches and if they gave sufficient thought to the content of those speeches to acquire a full appreciation of what was said.

At that convention there appeared at the speakers' rostrum a succession of management representatives whose words, often tough and always determined, left no doubt that the railroads had taken a stand and intended to fight back with all the weapons at their command against the forces opposing them.

Making the keynote speech at the opening session, President Daniel P. Loomis of the Association of American Railroads, ranged over the whole gamut of railroad problems and visualized "at the end of the line . . . . a stripped-down, streamlined, space-age railroad system, offering exciting new levels of service to our dynamic country." Later in the program Vice President R. G. May of the AAR's operations and maintenance department spoke out against what he called "featherbedding by congressional statute," this being the practice of the railway labor unions in pushing "various make-work bills in Congress under the guise of improving railroad safety."

Then, speaking at the annual luncheon, Board Chairman Ben W. Heineman of the C&NW demanded that lower railroad rates be given "highest priority" by railroad management, legislators and regulatory agencies, to the end that the "inherent efficiency" of the railroads may be utilized as a weapon against the threat of inflation.

From these remarks (and there were many more like them which space doesn't permit recording here) it appears that the railroads, so long on the defensive, have now taken the offensive in an effort to solve their problems. The new trend of thinking was summed up by Mr. Loomis in these words;

"Recent years—and certainly recent months—have seen a wonderful new spirit taking hold in railroading. . . . Railroads are stripping down for action. We are cutting out the deadwood of losing and unpatronized services and concentrating effort and resources in areas of greatest promise. Many traditional practices may have to go by the board in the process. A lot of sacred cows may have to be put out to pasture."

Maintenance men will read these sentences with mixed feelings. They will, of course, derive courage and inspiration from the knowledge that the railroads have a plan of action and apparently are determined to see it through. They will also obtain satisfaction from the fact that no one is pointing a finger at them. For the fact is that M/W departments have long since put most of their "sacred cows" out to pasture. Spurred by stark economic necessity, they have already stripped down for action and cut out a great deal of "deadwood."

In fact, in dealing with the over-all problems of the railroads, management could learn a lesson or two from an examination of what's been happening in their M/W departments.

MHD

• This main-line track, left, of the Minneapolis and St. Louis Railroad at Hopkins, Minn., was treated with "Telvar" monuron and sodium chlorate-borate in June. Photo taken two months later. Note the excellent weed control compared to the track in center which was not treated.

Control weeds all season long . . . Reduce maintenance costs with just one spraying

Du Pont "Telvar" monuron or "Karmex" diuron weed killers, used separately or in combination with other chemicals or weed oil, provide the base for efficient, economical weed-control programs. One application controls weeds for a season or longer . . . cuts annual maintenance costs. "Telvar" and "Karmex" weed killers are wettable powders, and are non-volatile, non-flammable, non-corrosive and low in toxicity to humans and livestock.

The selection of the proper Du Pont weed killer, "Telvar" or "Karmex", depends on various conditions of soil type and moisture. Du Pont Weed-Control Specialists are ready to aid you in choosing the proper chemical and in planning an efficient and economical weed-control program. Write: E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Room D-4036, Wilmington 98, Delaware.

WHERE BRUSH IS A PROBLEM, use Du Pont "Ammate" Weed and Brush Killer. "Ammate" assures long-term brush control, which means lower maintenance costs. Because "Ammate" is non-volatile, it can be used on rights-of-way, even where they adjoin cropland planted to sensitive crops.

On all chemicals, always follow label instructions and warnings carefully.

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Weed and Brush Killers

TELVAR® monuron weed killer

KARMEX® diuron weed killer

AMMATE® weed and brush killer

To keep them on the job...

keep AJAX® on the job!

YOU SAVE THREE WAYS WITH AJAX CUPS

CUT DRINKING SERVICE COSTS. You can put Ajax drinking service right on the job . . . on every job. No long, time-consuming hikes for your men to get a drink of water. Each man serves himself from the Ajax Insulated Heavy Duty Cooler. No tending necessary. And Ajax cups cost you less than many other kinds.

REDUCE ABSENTEEISM. Ajax service is the clean, sanitary way to put drinking water on the job. Each cup is used once and discarded . . . reducing danger of infections like the common cold, which can be transmitted through use of a common dipper or cup. And Ajax encourages adequate water intake needed to keep workers healthy.

PROMOTE SAFETY. Ajax Cups are available imprinted with stock safety messages. These clever cartoons spread safety consciousness among your employees in a continuous, pleasant and effective way. Also available printed to your own order.

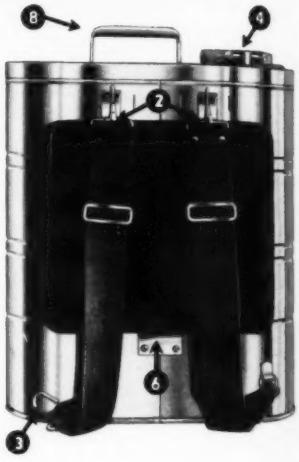
AJAX® CUPS

UNITED STATES ENVELOPE COMPANY

68 Prescott St., Worcester 5, Mass.
10700 Harry Hines Blvd., Dallas 9, Tex.
5650 Hollis St., Emeryville 8, Calif.

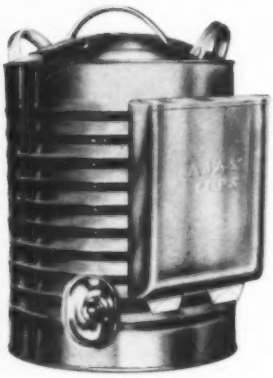
• AJAX Stainless Steel Portable Tank

1. Tank is made of rugged Stainless Steel firmly welded and braced. Easy to sterilize and keep clean.
2. Strong web carrying straps with adjustable buckles and snap hooks.
3. Right shoulder strap hooks easily and conveniently under edge of tank.
4. Easily opened dust-tight cover hinged to tank.
5. Sturdy Chrome-plated Brass push-bottom faucet.
6. Form-fitting ventilated plate on back protects carrier from chill and condensation.
7. Steel AJAX Dispenser holds 300 cups. Firmly attached.
8. Large handle lets carrier hold tank like a suitcase.
9. Easily emptied receptacle for waste cups in bottom of tank.



No. 4P-15 — Weight empty 11 lbs. Capacity approximately 5 gallons Dimensions 17" high, 14½" wide, 7¾" deep

• AJAX Insulated Heavy Duty Water Cooler



AJAX Insulated Heavy Duty Water Cooler provides the finest cold water service available for use in the field. Features include:

Corrugated All-Steel construction gives greater strength and durability.

Heavy Duty Insulation top, bottom and all sides, keeps water cooler longer.

Perfect Fitting Lid fits securely, keeps out dust, prevents contamination.

Recessed Spigot eliminates danger of breaking off, helps insure positive sanitation, drains without spillage.

Special Bottom Support holds cooler in shape, prevents center sag.

Steel Ajax Dispenser holds 300 cups. Firmly attached.

Easy to sterilize and keep CLEAN.

No. 45-35S — Weight empty 16 lbs. Dimensions Outside Height 19½" Outside Diameter 13¼"
Capacity approximately 5 gallons

• AJAX Dispensers

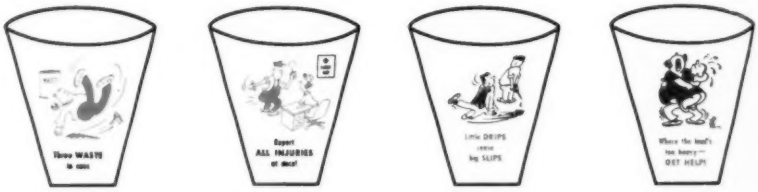
Made of steel, finished in durable enamel. *Easily installed* — attached to tank by lugs or wall by screws. *Simply filled* — cups drop into dispenser from carton *without hands touching cups.* May be refilled before completely empty. Dispense 1 cup at a time.

No. 414
For 4 oz. AJAX Cup
For 6 oz. AJAX Cup

No. 454
For 4 oz. AJAX Cup

No. 467
For 6 oz. AJAX Cup
For 7 oz. AJAX Cup

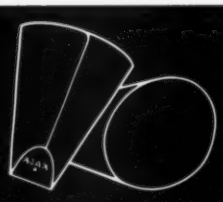
• AJAX Imprinted Safety Slogans



AJAX Cups in all sizes are available for immediate shipment with these typical Stock Safety designs, assorted, in cartons and cases. Your own special messages furnished at a slight additional charge. This is the most effective and economical system yet devised for getting safety messages *read.* Does not require time out for safety reminders.

AJAX® CUPS

UNITED STATES ENVELOPE COMPANY



68 Prescott St., Worcester 5, Mass.
10700 Harry Hines Blvd., Dallas 9, Tex.
5650 Hollis St., Emeryville 8, Calif.

"That's the big boss!...I bet the railroad budgets CHIPMAN weed and brush killers now!"

Chipman chemicals and application service are backed by over 45 years of railroad weed control experience. A broad line of weed, grass and brush killers is available. Each chemical or chemical combination is formulated for specific vegetation problems. Most widely used are these trade-name products:

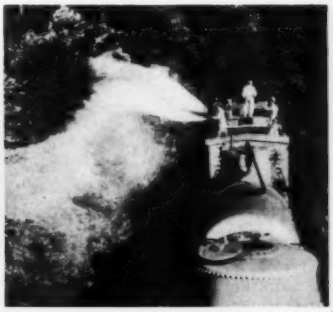
Atlacide • Atlas "A" • Chlorax • Chlorea • Methoxone-Chlorax
TCA-Chlorax • Methoxone-Chlorea • Chipman Brush Killer

We can solve *your* weed problems with the *right* chemicals and application service. Check with us today!

CHIPMAN
Chemical Company, Inc.

World Leader in Chemical Weed Control Since 1912

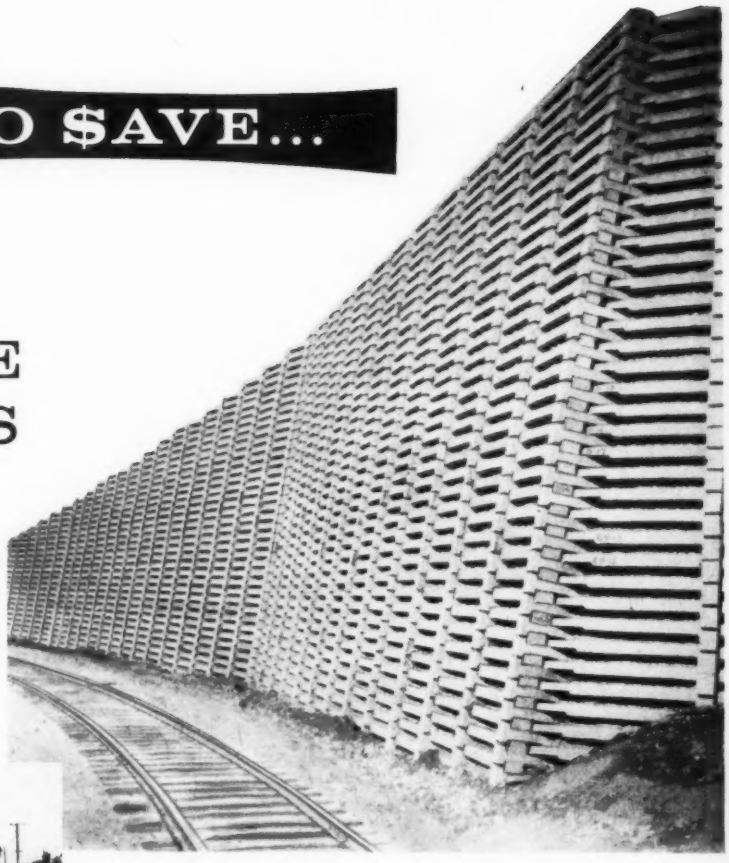
RAILROAD DIVISION HEADQUARTERS
608 South Dearborn St., Chicago 5, Ill.



3 WAYS TO $AVE...

with

PRECAST CONCRETE PRODUCTS



CRIBBING

Concrete crib walls, because of their economy and adaptability, are the permanent answer to most retaining wall problems. Architecturally pleasing too.

PRESTRESSED RAILROAD BRIDGES

Precast maintenance-free Amdek bridge beams are made under factory controlled conditions, delivered on schedule, erected quickly with minimum traffic tie-up.

CULVERT PIPE

Concrete culvert pipe is permanent. Available in the shape, size and strength required. Has superior hydraulic properties.

AMERICAN-MARIETTA COMPANY

CONCRETE PRODUCTS DIVISION

GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

Story of the AREA meeting in pictures

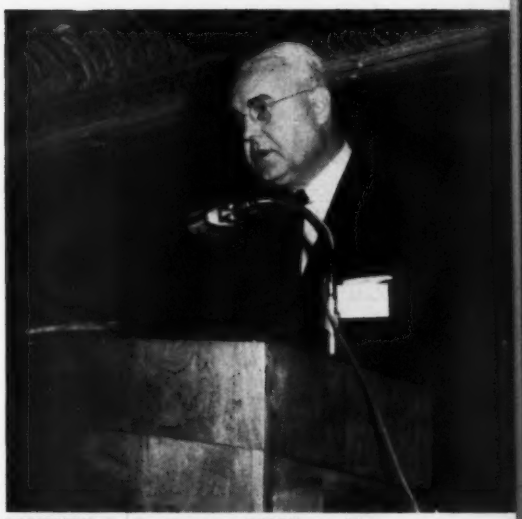
● The American Railway Engineering Association held its fifty-eighth annual meeting at the Sherman hotel, Chicago, on March 9-11.

During the two-and-one-half-day meeting there was a total of 18 addresses presented, including a keynote address by Daniel P. Loomis, president of the Association of American Railroads. There was the annual luncheon at which the principal speaker was Ben W. Heineman, chairman of the Chicago & North Western.

There were reports by the associations 22 standing committees and one special committee. And these actually consisted of reports by subcommittees on 142 separate assignments.

In addition there were numerous luncheons and meetings of individual committees and other groups. In line with customary practice, the AREA Board of Direction held a pre-convention meeting on Sunday, March 8 (see photograph on front cover), and the reconstituted Board met again after the convention closed on March 11.

Of equal importance with all these activities were the people who were there. The photographs on these pages show glimpses of a few of them and what they did.



PRESIDENT B. R. Meyers, C&NW, making address at the opening session.

First they registered . . .

RECEIVING LINE—E. J. Brown, CB&Q, hands card to R. J. Brueske, Milw. Road. T. M. von Sprecken, SOU, in background.

SIGNING UP—R. C. Turnbell, Paul L. Montgomery, both Nickel Plate; and Edward Green, city engr., Ft. Wayne, Ind.

REGISTERING—Charles F. Reade and Fred D. Owen, both Reade Mfgr. Co., getting their identification badges.

LUNCHEON TICKETS—Don Musser, Erie, and R. G. Kensel, Cont'l. Oil, are served by F. N. Beighley, Frisco, and M. B. Miller, PRR.

INFORMATION—C. G. Parris, AAR, gets some from Floyd Johnson, Colo. Fuel & Iron, and E. M. Hastings, Jr., C&O.

BOARD OF DIRECTION in session on Sunday, March 8, a day before the convention opened. Left to right around table—A. B. Hillman, treasurer (ch. engr., Belt Ry. of Chicago-C&WI); T. F. Burris, director (ch. engr., sys., C&O); W. W. Hay, director (prof. ry. civil engr., Univ. of Ill.); A. B. Stone, director (ch. engr., N&W); A. V. Johnston, director (ch. engr., CNR); L. A. Loggins, director (ch. engr., SP Lines in Tex. & La.); Ray McBrian, past president (dir. of res., D&RGW); Neal D. Howard, executive secretary; Frank R. Woolford, senior vice president (ch. engr., WP); B. R. Meyers, president (ch. engr., C&NW); E. J. Brown, junior vice president (ch. engr., Burl. Lines); R. G. May, vice president, operations and maintenance department, AAR; Wm. J. Hedley, past president (ch. engr., Wabash); G. H. Echols, director (ch. engr., SOU); W. G. Powrie, director (ch. engr., CMStP&P); W. H. Hobbs, director (ch. engr., MP); J. C. Jacobs, director (engr. m/w, IC); W. M. Jaekle, director (ch. engr., SP); T. M. von Sprecken, director (asst. to ch. engr., SOU).

There was much going on, in and out of the

At RT&S coffee bar, open from 8 to 10 each morning, many railroad men and their supplier friends fortified themselves for the day's activities with fruit juices, rolls and coffee

L. A. Loggins, SP in Tex. and La; Ray McBrian, D&RGW; W. C. Whitham, Milwaukee Road; R. J. Moe, Jackson Vibrators; and A. B. Stone, N&W.

J. T. Ward, Seaboard Air Line; H. P. Wright, B&O (chairman, Elect. Sect., AAR); C. C. Elder, secretary, Electrical Section.

R. G. Lewis and J. D. Dolan, Jr., both RT&S; F. E. Rogers and J. W. Christoff, both Mannix International, Inc.

EUROPEAN REPORT—Ray McBrian, D&RGW, gave account of recent trip abroad.

KEYNOTE SPEECH—D. P. Loomis, AAR president, addressing the opening session.

LUNCHEON SPEAKER—Ben W. Heineman, chairman of C&NW, addressing annual luncheon, said the railroads could recapture traffic by undertaking a rate-reduction program.

meeting rooms

W. J. Cruse, Great Northern; W. E. Cornell, Nickel Plate. Both new AREA directors.

These officers were elected

In the election of officers, F. R. Woolford, chief engineer, WP, San Francisco, was advanced from senior vice-president to president. E. J. Brown, chief engineer, Burlington Lines, Chicago, was automatically advanced from junior vice-president to senior vice-president. R. H. Beeder, chief engineer system, Santa Fe, Chicago, was elected junior vice-president.

New directors elected are W. E. Cornell, engineer of track, Nickel Plate, Cleveland; F L. Etchison, chief engineer, WM, Baltimore; W. J. Cruse, engineer maintenance of way, GN, St. Paul; and C. R. Riley, chief engineer, B&O, Baltimore.

Members of the Nominating Committee are J. E. Eisemann, chief engineer, Western Lines, Santa Fe, Amarillo, Tex.; W. D. Kirkpatrick, assistant to chief engineer, MP, St. Louis; C. E Weller, assistant engineer maintenance of way, IC, Chicago; C. Neufeld, engineer of bridges, CPR, Montreal; and C. L. Towle, chief engineer, DT&I, Dearborn, Mich.

B. R. Meyers congratulates president-elect Frank R. Woolford following installation of new officers.

Unidentified guest helps himself to coffee with cream. Also on the menu: Orange and tomato juice, sweet rolls and doughnuts.

H. C. Rutledge, W. B. Blix, Nordberg Mfg. Co.; J. W. Crossett, RT&S; L. E. Woolery, Woolery Machine; J. R. Thompson, RT&S.

H. L. Holderman, Bird & Son; W. H. Gardner, F. R. Micheal, Wab. Gardner is prin. asst. engr., Micheal, engr. way & struct.

Three representatives from the Erie—W. F. Pettoys, engr. m/w; H. J. Weccheider, engr. m/w; and R. H. Jordan, div. engr.

M. S. Westlund, Jackson Vibrators; H. W. Kellogg, Chesapeake & Ohio.

Two men from the IC—S. D. Finlay, inst'n. and E. F. Snyder, asst. to ch. engr.

L. R. Lamport, formerly C&NW, now AAR; E. C. Vandenburgh, ret'd ch. engr., C&NW.

Engineers and supply company representatives were there from all over the country. There was, too, a fair sprinkling of retired maintenance men

R. H. Beeder, Santa Fe, and H. B. Christianson, Jr., CRI&P. Beeder is new AREA v-p.

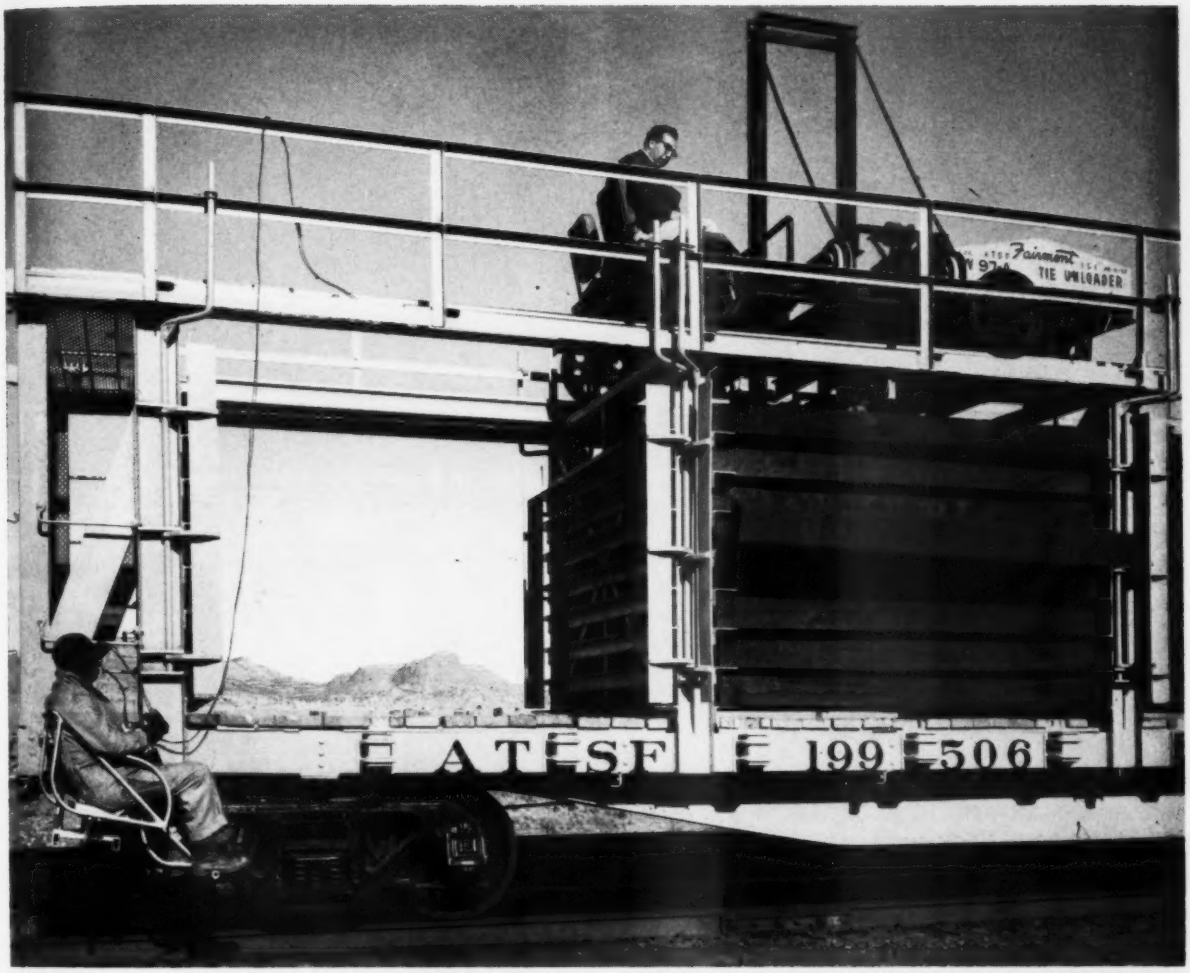
M. H. Dick, pres., B&B Assn., and C. E. Neal, pres. of the Roadmasters' Assn.

Four representatives from the Missouri Pacific—R. W. Hickson, J. E. Stewart, A. B. Chaney, and R. F. Hanfield.

W. E. Cornell, Nickel Plate; T. A. Blair, retired chief engineer, Santa Fe System; and H. H. Talboys, Norberg Manufacturing Co.

A. H. Whisler, Frank Speno Railroad Ballast Cleaning Co.; T. H. Taylor, PRR; and M. J. Speno, also Speno Company.

P. J. Wolf, Maint. Equip. Co.—Railway Maint. Corp.; R. W. Middleton, H. M. Minteer, R. G. Simmons—all Milwaukee Road.



ON SIGNAL from "spotter" riding on chair attached to car, operator of tie-unloading machine causes ties to be discharged from shelves in tie cars. An entire tier of 13 ties can, it is said, be unloaded in less than 10 sec. Ties fall parallel with track.

With a crew of only four men and using a hydraulic machine operating on rails placed atop specially designed cars, the Santa Fe is now . . .

. . . Unloading 6000 ties per day

● Using newly developed special tie cars and an unloading machine, new crossties on the Santa Fe can now be loaded at the treating plant and unloaded alongside the track with a process that literally leaves them "untouched by human hands."

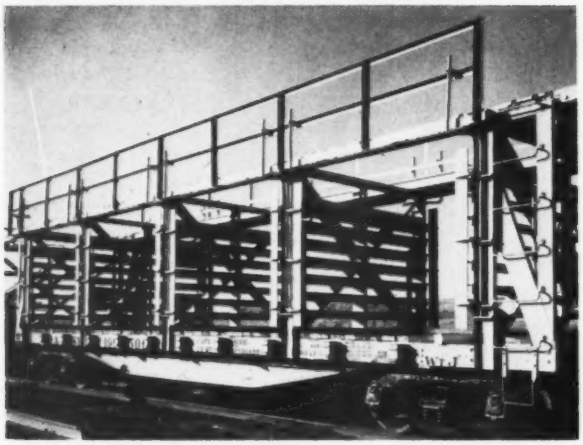
Development of the tie distribution equipment, underway for some time, has progressed to the point where it is in active shuttle service between the road's tie and timber treating plant at Albuquerque, N. M., and mechanized gangs replacing crossties on it's high-speed, heavy-traffic main-line tracks.

Previously the mechanized tie gangs had been supplied with new crossties shipped in coal cars and similar equipment, requiring that the unloading be carried on entirely by hand. The former method generally required the men to work in pairs in open-top cars loaded with new ties, picking up each crosstie and individually heaving it over the side of the car. Using this method it was possible sometimes to unload about 1000 ties per day with a small gang.

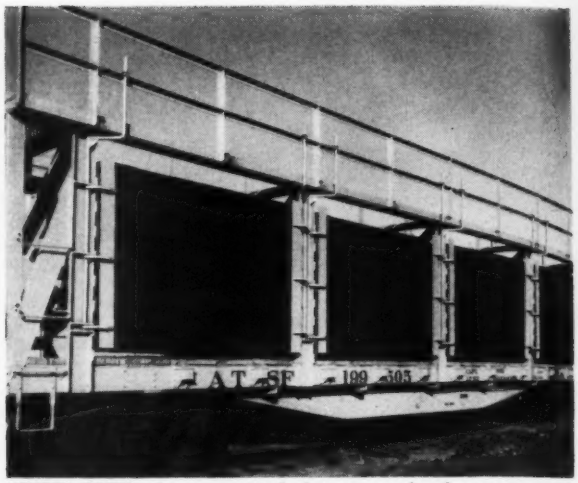
Sometime ago, when the Santa Fe decided its tie-unloading work must be modernized, the road's engineers outlined plans they had in mind to representatives of Fairmont Railway Motors, Inc., and the latter company was given the task of developing a machine that would handle the actual tie unloading from special tie cars that the Santa Fe would design and build. This joint endeavor has resulted in equipment with which about 6,000 crossties can be unloaded in less than 8 hr, with the new ties being placed

What it is, how it works

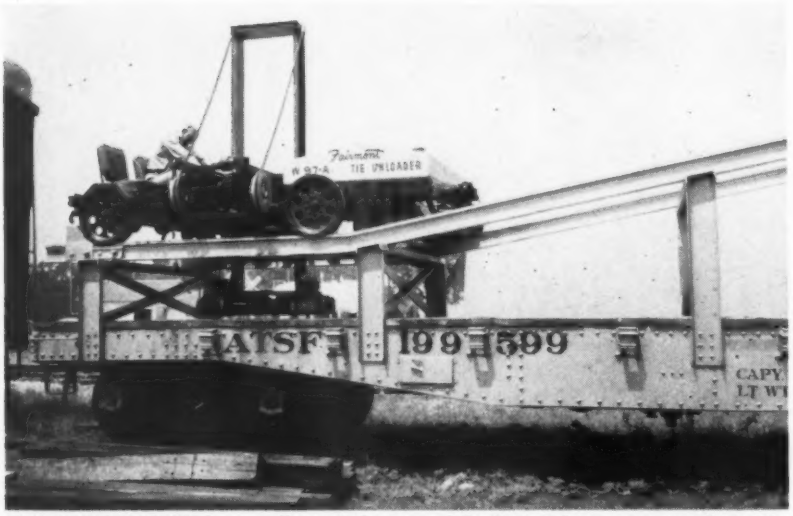
Santa Fe tie unloader (cont'd)



EACH TIE CAR has four compartments, each with eight sets of shelves. Capacity is 104 ties per compartment; 416 per car.



HINGED GATES of narrow steel plates at ends of compartments are fastened in closed position during moves of loaded cars.



UNLOADING MACHINE is normally carried on especially designed ramp car at end of train. From storage spot at end of car, machine moves up ramp to unloading position.

alongside the track at a location very nearly opposite the points where they are to be inserted.

Cars are converted flats

The Santa Fe owns a number of 44-ft 6-in flat cars that were considered ideally suited for conversion into special tie cars. On each flat car selected, five bulkheads are constructed of steel channels and steel angles to form four compartments for supporting and containing the new ties. The compartments are equipped with shelves made by welding 6-in by 4-in by ⅜-in steel angles to the face of the bulkhead constituting the end of each compartment. The new crossties are loaded by fork-lift trucks at the treating plant so that their ends rest on the shelves in a position parallel to the track.

The distance between bulkheads is 9 ft 2 in so that the angle shelves will be the proper distance apart to support the ends of 9-ft ties. The loading and handling of new 8-ft ties is accomplished by inserting in each compartment a removable jig carrying a matching set of shelves, so that the available space is 8 ft 2 in long.

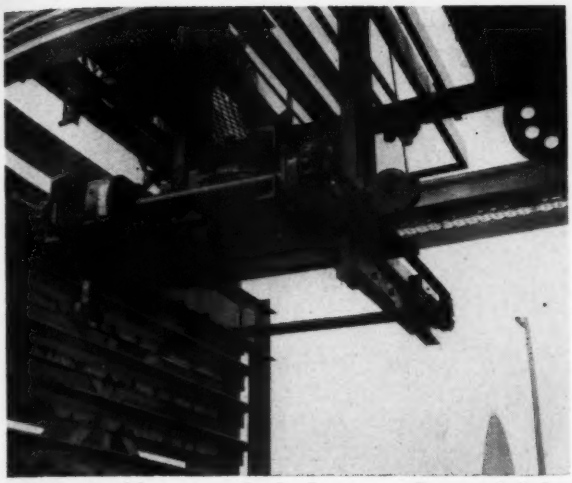
The tops of the compartments, which are 7 ft 6 in above the deck of the car and 11 ft above the top of rails, are tied together by two 131-lb rails installed longitudinally with the car and spaced to provide a gage of 6 ft 10 in. These rails function as running rails for the tie-unloading machine. Expanded metal catwalks, and hand-rails constructed of small steel angles, are installed outside of these running rails, on both sides of the cars.

Narrow gates made of vertical steel plates ½ in thick by 6 in wide and pivoted on 1½-in gate-hinge shafts, are provided at both ends of each compartment. During long moves of the equipment these are fastened in the closed position so that the new crossties will be restrained laterally from sliding off of the shelves.

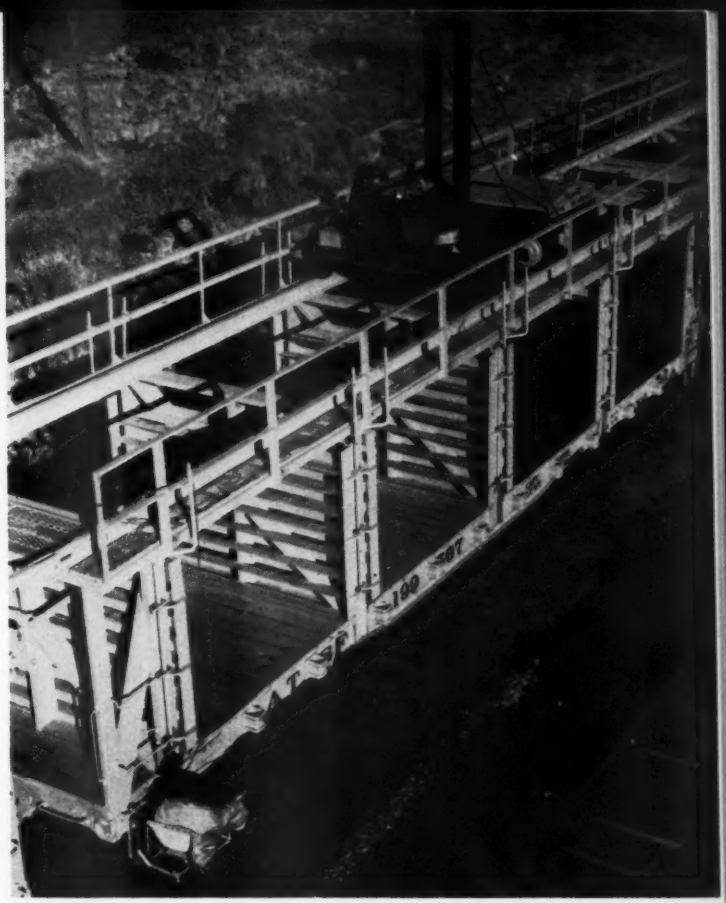
Each compartment has eight sets of end-shelves, spaced 9 in apart vertically, and as the width of the car permits these shelves to be more than 9 ft long, each tier will carry 13 new crossties. This arrangement gives a total of 104 crossties per compartment or 416 per car. As 14 cars are normally used together in one work train, a total of 5824 crossties is generally available for unloading and distribution during the day's operation.

How tie-unloader works

The tie-unloading machine is normally carried on an especially designed ramp car at the end of the 14-car string of loaded tie cars. The ramp car is equipped with two inclined 131-lb rails, by means of which the tie-unloading machine can be brought from its low-level storage spot on the car up to the height of the rails on top of the tie cars. The tie-unloading machine moves from ramp car to tie car and from tie car to tie car by means of pivoted drawbridges designed with longitudinal slippage so as to eliminate binding on curves and during train movement.



LOWER END of boom on unloader has two endless steel chains. Lugs on chains push against sides of ties to unload them.



TIE CARS are operated in trains of 14 each. Unloading machine moves from car to car over pivoted drawbridges. The travel speed of unloader is 6 mph.

The tie unloader is powered by a 22½-hp engine with fluid coupling and a pump. It is completely hydraulic in its operation, weighs about 5500 lb, and has a machine travel speed of 6 mph from bin to bin and across the top of the tie cars.

Principal mechanism of the tie-unloading machine is a vertical boom which is completely hydraulic and can be positioned laterally or vertically. A small carriage with two endless chains is installed at the lower end of the boom. The endless chains are mounted 3 ft apart and each carries a lug long enough to engage the side of the crosstie on the outside of each tier. The machine is a one-man operation and the control of the propulsion, vertical boom movement, lateral boom movement and revolution of the two chains with lugs is accomplished with four hydraulic valves.

In operation, the tie-unloading machine is positioned over the center of a loaded compartment, the narrow gates on the side of the compartment are opened and the boom is moved laterally and vertically to a point where the two lugs engage the side of the crosstie of the top tier on the opposite side of the compartment from the open gates. As the work train and tie cars move along at a speed of from 2 to 4 mph the crossties in this tier can be shoved laterally by the two lugs so that they will drop off of the ends of the shelves at desired locations.

Since the lug chains have a speed of 162 fpm it is said to be possible to unload an entire tier of 13 ties in less than 10 sec. At a train speed of 3 mph this would permit unloading a crosstie every 3.4 ft along the track. Such close spacing is rarely required, however, as tie-renewal programs are undertaken when the average distance between tie replacements is about 26 ft. This is the average spacing for a renewal rate of about 200 ties per mile.

In territories where required tie renewals are heavy enough to justify the operation of the tie-unloading equipment and mechanized tie-renewal gangs a tie inspector marks the individual ties in need of renewal. Usually the outside head of the rail is marked with yellow crayon directly above each tie to be renewed.

Special seat carries "spotter"

When the work train with the tie unloading equipment is unloading ties in territory previously covered by the tie inspector, the location of the markings is conveyed to the operator of the tie unloader by a man, known as the "spotter," who rides in a portable lightweight basket chair attached to the side of the tie car. This chair or seat is hooked to the lower grab iron and sill step, and is moved by the spotter from one tie car to the next as the tie unloading progresses.

From the spotter's position he can readily see the tie inspector's markings. This information he conveys to the tie unloader operator who causes the machine to shove ties off of the end of the shelves as indicated by the markings. Communication between the spotter and the operator of the tie-unloading machine is carried on by various means, including a buzzer system, a portable battery-operated loud speaker megaphone with shoulder harness, and also by radio. Radio communication now seems to offer the most practical method.

The tie-unloading equipment is handled by a maintenance-of-way crew of four men including the tie-unloader operator, the spotter, one man to handle the gates on one side of each tie compartment and the drawbridges between cars, and one man with tie tongs who follows the work train on foot to swing one end of the new ties away from the track on those infrequent occasions when they fall in a position to restrict the clearance.

Says R. H. Beeder, Santa Fe System chief engineer: "To date the use of the new equipment shows an appreciable saving in the unloading costs as compared to former methods."

An elevated rapid-transit system had to change out the ballast on a double-track line on which trains operate at frequent intervals. It turned out to be a job requiring...

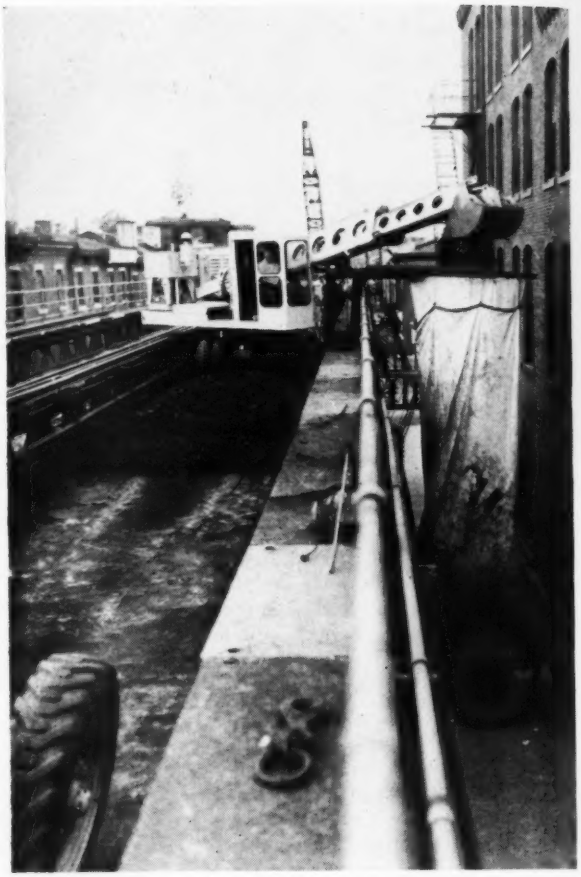
...Fast work in close quarters

● How do you do a track-stripping and replacement job on an elevated rapid transit line with trains going by at intervals of one to three minutes?

You've got to take up the rails and ties, remove the old ballast, dump and spread new ballast, and replace the track. There's only one thing in your favor. It is a double-track line and you can use the "live" track to bring in materials and equipment, that is, if this can be considered much of an advantage under these operating conditions.

These are the basic elements of a problem that confronted the maintenance forces of the so-called "Frankfort El," which is part of the electrified rapid transit system of the Philadelphia Transportation Company. After 44 years of continuous operation, this eight-mile line developed drainage difficulties that required removal and replacement of the roadbed ballast.

GRADALL was moved to job on standard car truck and lifted into the working position by the P&H crane.



Because of the high frequency of train operation on week days it was decided to do the work on week ends during the period from 10 pm Friday to midnight Sunday. Even during this period trains operate at three-minute intervals, and this traffic had to be accommodated on one track while the other track was out of service and being stripped and replaced.

What equipment and procedure?

The problem was to select equipment capable of working safely and effectively in the close quarters available, and then to develop a procedure for doing the work under the existing conditions. After careful study, these major items of equipment were selected:

- An electric P&H crane mounted on a flat car, and operating on power taken from the third rail.
- A Warner & Swasey Gradall.
- An Adams motor grader.
- An Agricat miniature bulldozer.

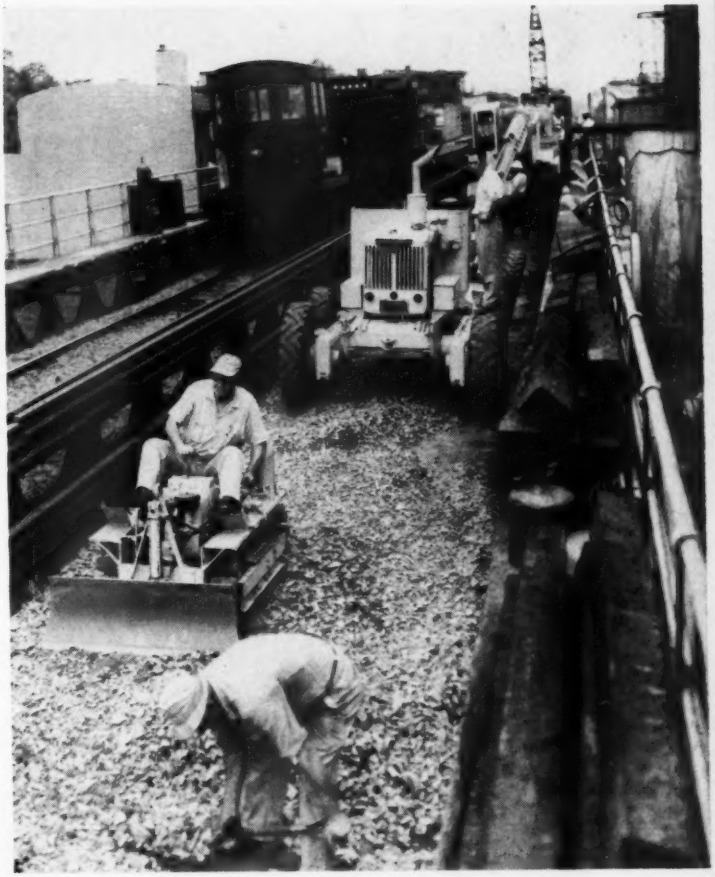
The Gradall was chosen for the job because it was deemed well suited to work and maneuver in the space between the curbs of the concrete deck, and to dig in the corners and around the crossbeams that project 12 in above the floor at 50-ft intervals.

There remained, however, the problem of getting the rubber-tired Gradall to and from the job. This was solved by designing an ingenious rig by means of which the excavating machine could be hoisted by the crane and placed

NEW BALLAST is dumped from cars operating on adjacent track. Note ties piled on outside girder and rails on inside girder.

OLD BALLAST, scooped up by Gradall, is dumped into canvas chute leading to truck. Frame carrying the chute was moved forward by Gradall. Poor drainage was reason for job.

MINIATURE bulldozer smooths ballast that has been spread roughly to grade by the motor grader behind it. These machines are following the Gradall, visible in background.



on a standard four-wheel car truck. This permitted the machine to be moved to the job in a work train next to the crane and lifted by the latter unit from the dolly to the working position.

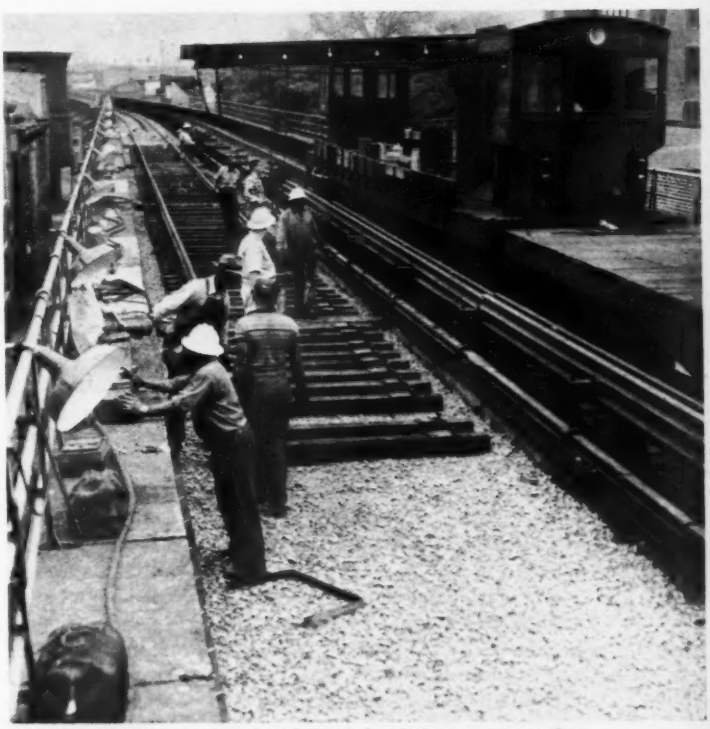
The first step in the conduct of the work was to remove the rails and ties. The Gradall was then placed on the old ballast and proceeded to excavate and load it into trucks on the street below.

Ballast Chuted to trucks

A canvas chute was used to confine and direct the material as it was discharged from the bucket of the Gradall. The chute, along with the frame on which it was mounted, was moved forward by the Gradall as required by the progress of the work.

New ballast, loaded in dump cars, was brought to the job in a work train and dumped directly into position as required. The motor grader then spread the ballast roughly to grade, and the Agricat finish-smoothed it to receive the ties. The crane was then used to replace the ties and rails.

Using this equipment and procedure a section of track about 1200 ft long could be removed and replaced each week end. The work was undertaken last year and was 60 per cent completed before it had to be halted temporarily. This was necessary because of the heavier week-end traffic carried by the line during the winter months. The work will be completed during the current season.



TIES AND RAILS are replaced with the help of the crane operating on the other track. Note lights for night work.

Claim better, faster ballast unloading with new doors

With 1100 miles of main line to reballast the Ferrocarril del Pacifico wanted an improved method of ballast distribution. Two things were desired: Faster unloading to reduce work train time and a means whereby ballast could be distributed along the track in the quantity desired, thus eliminating waste. Both were achieved by a new type of mechanism for controlling the flow of ballast from hopper cars.

NEW DOORS are designed to pivot on pins located on the sides of the hoppers. Each

BALLAST cars of 70 tons capacity are said to be unloaded in 3 to 5 min using the redesigned hopper doors. Eliminated is use of ballast pans or a tie placed ahead of rear wheels.

● The Ferrocarril del Pacifico, a 1331-mile railroad in Mexico, was recently faced with this situation:

The job: Reballast its entire main line which runs for 1100 miles along the west coast of Mexico between Guadalajara and Nogales.

The equipment: Sixty 50-ton rented hopper cars and sixty 70-ton hopper cars that were purchased in the United States.

The problem: How to speed up unloading these standard hopper cars and get a better distribution of ballast along and across the track.

The road's assistant general manager of engineering and maintenance, F. V. Lagarde, recognized that on a project of this magnitude considerable savings could be realized with an improved method of ballast distribution. If the hopper cars could be unloaded faster the total work-train time required would be reduced. In addition, if the ballast could be distributed along the track in the quantity desired waste would be eliminated and a car of ballast would cover more area. The latter would require a controlling mechanism since more ballast would frequently be desired at one location than at an adjacent location. Also more ballast would often be required on one side of the track than on the other, such as on curves.

Mr. Lagarde was able to interest a Guadalajara contractor and engineer, Eduardo Damy, in the problem. Since Mr. Damy had no previous railroad-ballasting experience it was possible for him to attack the problem without any preconceived opinions.

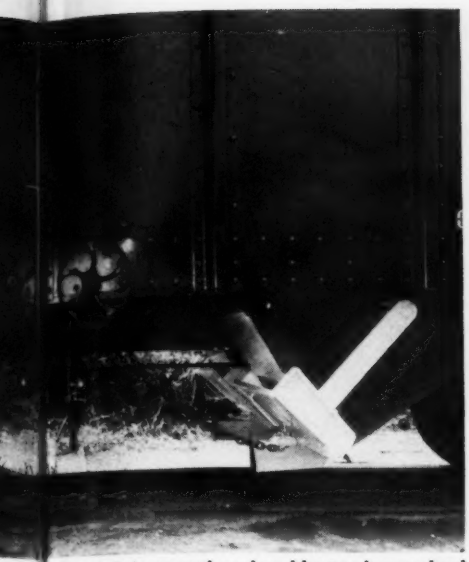
Opening is half closed

His solution: Redesign the hopper doors, pivoting them on the side of the hopper rather than hinging them at the top as in standard hoppers. The purpose of this modification was to utilize the weight of the ballast against the door, giving it a natural tendency to remain closed.

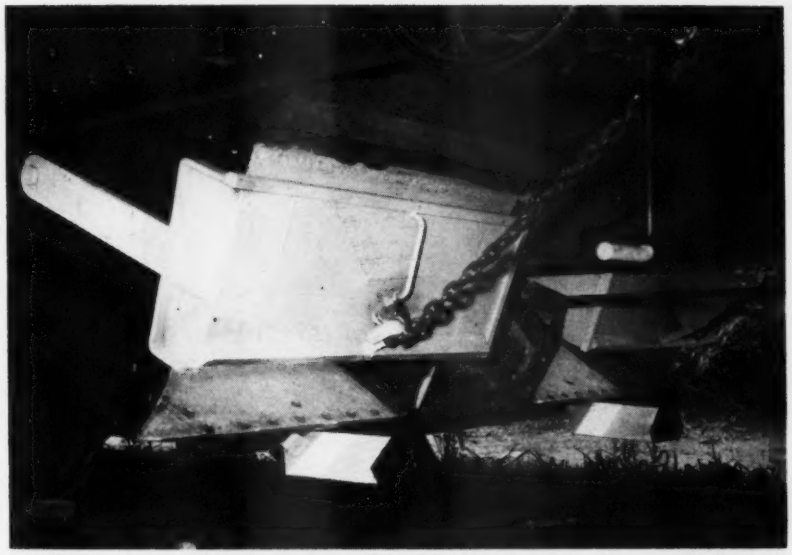
The first step in the modification of the cars was to close the top half of each hopper opening by welding a steel plate across it. A new door was then installed over the lower half. Each new door was constructed of welded steel plates with a lip at each end that fits over the edge of the hopper. To each lip is welded an arm the end of which is pivoted on a steel pin on the side of the hopper. The pins are located at about the center of each hopper near its top, and there is one on each side.

Doors controlled in pairs

Doors on adjacent hoppers are controlled by a single opening mechanism. This consists of a brake wheel, dog and staff similar to the hand brakes formerly used on box cars. The steel staff, located in front of the pair of



pair is opened or closed by turning a wheel located on the side of the car.



BALLAST can be distributed equally to each rail (above) or to only one rail (below). Baffles under the openings keep ballast from piling up on top of the rail.

hoppers it controls, runs horizontally and transversely under the floor of the car. To it is attached the brake wheel and a ratchet wheel. The brake wheel is located on one end of the staff outside the car.

Two chains are welded to the staff, one opposite the center of each door. The other end of each chain is fastened to the bottom face of each hopper door. To open them the wheel is turned, to wind the chains around the staff. As the doors are opened they are held in that position by the dog engaging the ratchet wheel. By this means door openings of from 0 to 6 in can be obtained. The leverage between the wheel and staff is designed to permit the door to be opened without the aid of hammers or bars.

Permits selective dumping

When ballast is being distributed along the track it is frequently necessary to increase or decrease the flow or to stop it entirely such as at bridge ends, switches and highway crossings. This is said to be quickly and easily accomplished with the new doors, while the cars are in motion, by operating the wheel and dog in a manner similar to applying or releasing hand brakes on a box car.

Selective dumping of ballast, placing more on one side of the track than on the other, is another advantage claimed for the unloading mechanism. This is done by adjusting the slack in the door-opening chains of each hopper. A hook is provided at the bottom face of each door for this purpose. The chain is wound around the hook until the correct length remains to give the desired door opening. The flow of ballast can in this manner be regulated to match the speed of the work train. Baffles are provided under the doors to direct the flow of ballast to each side of each rail, thus preventing it from piling up on top of the rail.

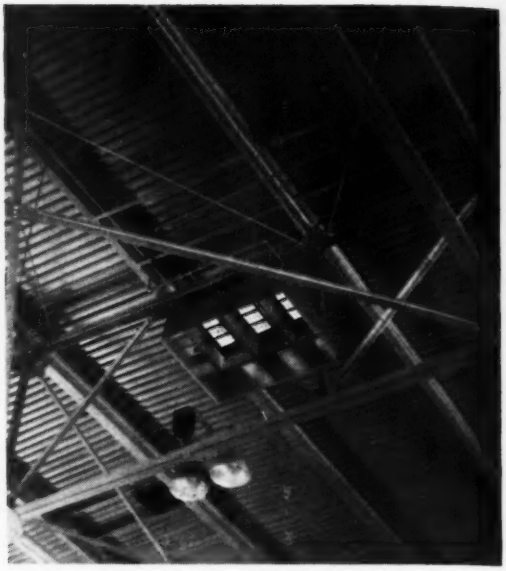
A third feature claimed for the mechanism is that it does not detract from the general utility of the car. The hopper is just as useful for dispensing other materials as it is for ballast.

It is reported that a 70-ton hopper with the new unloading mechanism can be unloaded in 3 to 5 min, depending on the characteristics of the ballast. It is also said that, with these cars, the road has been able to dispense with the use of ballast pans or the necessity of placing a tie ahead of the rear wheels where ballast pans are not available.

The railroad has expressed itself as being highly pleased with the results and savings realized through the use of the converted hopper cars. In fact, it has now converted ninety-six of its hopper cars to the Damy-design mechanisms. All hopper cars presently used in ballast service on the FCP are so equipped.

BELOW—New Haven passenger station at Harrison, N. Y., is heated by eight gas-fired infra-red heaters installed in April 1956. Satisfactory performance is reported.

RIGHT—One of 14 infra-red heaters in Erie's car shop at Meadville, Pa. Each heater consists of 12 gas-fired heads within an elephant-type shade 36 ft above floor.



Infra-red h

One of the assignments reported on by the Committee on Buildings at the AREA convention last month included a study of infra-red-ray heating. This report is reproduced here. J. W. Gwyn, assistant engineer, Missouri Pacific, was chairman of the reporting subcommittee.

● With the thought that railroad car shops, passenger stations and similar buildings with high bays can be effectively and economically heated by infra-red rays, a study was made of this subject by the AREA Committee on Buildings. It was made in collaboration with the Electrical Section, AAR. Nine different installations were visited and salient facts were obtained with respect to each.

Six of the installations inspected were representative of the type of infra-red heater manufactured under the original German patent. They included structures ranging from 60 ft wide by 125 ft long by 36 ft high to one that is 280 ft wide by 732 ft long and of various heights. These buildings were used for various purposes, such as welding, fabricating, and manufacturing, and included an interior loading platform and a railroad car shop.

The car shop inspected is located on the Erie at Meadville, Pa. This structure, 75 ft by 250 ft in plan by 41 ft high, is constructed of aluminum siding and has a corrugated metal roof. It is heated by 14 elephant-type shades containing 12 heads each—all under thermostatic control. Natural gas is used as fuel. The infra-red heating system was installed in November 1956 at a cost of about $11,000. The subcommittee was not able to ascertain the operating costs of this heating system because the gas supply was not metered separately to the heaters.

However, operating costs were obtained for three of these gas-fired heating installations. One, in Milwaukee, cost $6,371 to heat 32,000 sq ft of floor area for four months. Its Btu input is rated at 4,320,000. At another installation in Milwaukee, where 48,000 sq ft of floor area were heated, the operating cost was found to be 17.8 cents per square foot per year.

The third location was a fabricating shop in Cleveland. The operating costs were found to be $2,139 for three months operation in heating 38,000 sq ft of floor area. This cost included the heating of two washrooms with a duct furnace, as well as the operation of a 50-gal hot-water heater.

Two car-repair shops

The seventh and eighth locations inspected were two practically identical car-repair shops. These were heated by electrically generated infra-red in-

What rays are; how they're produced

The vital importance of heat from the sun is, of course, unquestioned. But the fact that all such heat is obtained by infra-red-ray transmission may not be thoroughly understood.

These rays are generated by burning gases in the sun and are transmitted at the speed of light without heating the atmosphere through which they pass. But when they strike an object, they are either reflected, absorbed or allowed to pass through the object. The portion of the rays which is absorbed is converted to heat, which warms the surrounding atmosphere by secondary convection.

Entirely similar infra-red rays can be generated by heating a surface to the degree necessary to emit such rays. This heating can be accomplished either by gas or electricity. Infra-red radiation increases as the fourth power of the absolute temperature. For example, a surface having a temperature of 1,600 deg F (2,060 deg absolute) emits 96 times as much radiation to an equal-area surface at 200 deg F (660 deg absolute).

A type of heater using infra-red rays was patented in Germany and mass-produced in 1952. It has been successfully used in cathedrals, exhibition halls, arcades, patios, outdoor cafes and factories. A manufacturer in the United States was soon licensed to make and distribute this brand of heater.

The gas for these heaters may be either manufactured, propane or natural. However, except for very limited areas and occasional use, the cost for the first two mentioned would be excessive. The cost of natural gas is, in many cases, low enough to permit its economical use as a fuel for infra-red heaters and it is becoming more widely available as pipelines are extended over the continent.

d heating for railroad buildings

stallations. Each shop has both ends and sides open; consequently the heaters serve as spot heaters. The heaters are arranged in two groups of two racks each on each of three tracks. The racks, which are 32 in high and 108 in long, are placed one on each side of the track at distances of 7 ft 4 in from the center line of track, with the bottom of the racks being 8 ft 3 in above the top of rail.

The racks are placed longitudinally to warm an area about 28 ft long. They are placed at a 45-deg angle to direct the rays downward on the desired area. The installation totals 12 racks, each with a consumption of 22.5 kw for a total of 270 kw. Thus, at the rate of 1 cent per kw-hr, their operation costs $2.70 per hr. This cost is not considered excessive because the work performed can be done much more efficiently. The installation is so made that one or all of the heater racks may be activated and each rack may be operated at one-third, two-thirds or full capacity. This type of installation warrants consideration in areas such as that served by the Tennessee Valley Authority where the cost per kilowatt-hour is one cent or under.

The last installation inspected by the subcommittee was another type of gas-fired, infra-red generator of much different construction. Seven heaters of this type are included in this installation, along with another model distributed by the same company. This installation is in a passenger station and is considered satisfactory after two years of operation. Infra-red heaters of this type, according to its distributor, comprise more than 20,000 installations in the United States; consequently some features of this one installation may be unique rather than typical.

How to figure needs

There is no exact method of arriving at the required size and number of heaters used in spot heating or to heat open-sided buildings. But for closed buildings no unusual problem is encountered in arriving at the required number and size of heaters. The conventional method of determining the heat loss and required Btu's can be followed except that the air higher than 15 ft above the floor is assumed to be unheated. Hence, no heat loss is considered through the sides and ends of buildings above that level.

When considering use of gas-generated infra-red-ray heaters in areas subject to wind or draft, proper shielding should be provided to avoid possible blow-out of the gas flame. Also, if the building contains an automatic sprinkler system, it must be protected from freezing.

It is planned to inspect other installations which will include different types of gas-generated as well as electric infra-red-ray heaters.

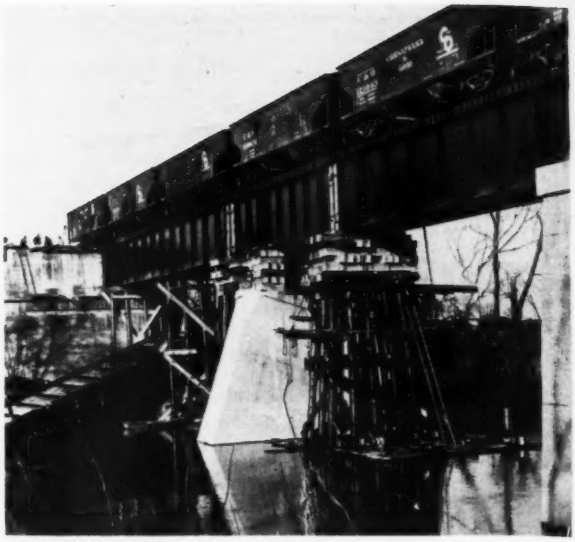
Comparative costs of heating a building

One major railroad has developed some estimated comparative costs of conventional and infra-red heating of the same building area, as follows:

Type of heat	Fuel	Labor	Other	Total
Coal	$43,500	$21,022	$7,252	$ 71,755
Oil No. 6	78,083	18,828	7,253	99,164
Oil No. 2	78,000		200	78,200
Natural gas* Conventional system	107,000		200	107,200
Infra-red	37,235		200	37,435

* Natural gas rate scheduled for reduction.

MID-WINTER flooding of Big Walnut creek undermined the center pier of the C&O's deck-girder bridge at Reese, Ohio. The spans under the eastbound track remained upright, although out of line, but the girders under the westbound track fell into the creek. During rehabilitation trains were detoured over N&W tracks.



RECONSTRUCTION was done in sub-zero temperatures, snow and sleet. Pile bents were driven where the westbound spans had been. The eastbound spans were then moved onto the bents to form a single-track bridge. Traffic was resumed on the eighth day after the washout. Double track will be restored this spring.

News briefs in pictures...

ABOVE—March 3 marked the end of a full year's test of the Railweight system for weighing cars individually while coupled in trains running across a track scale at speeds up to 7 mph. The International Railroads' Weighing Corporation, which developed this system, reports that the tests have proven that it will weigh cars under actual all-weather operating conditions well within the tolerances required.

RIGHT—A demonstration of power track equipment was held recently at Hammond, Ind., by the Pullman-Standard Car Manufacturing Company, Chicago, for the benefit of eight newly appointed sales representatives who will represent the company in the United States and Canada. Machines demonstrated were the company's Power Ballaster, Tie spacer (shown in the picture), Ballast Cleaner and Winch Car, Track Cribber, Tool Carriage, and Rail Handler.

What's the answer?

To be answered in July

Do you have an answer to any of the questions listed below? If so, send it in. Payment—based upon substance and length—will be made for each published answer. If you'd prefer that your name be withheld, we'll gladly comply.

DEADLINE: May 30

1. On what types of trucks and for what purposes is it advantageous to mount flanged-wheel attachments? Why? Are there any limitations governing the operation of such equipment? Explain.

2. When making an annual inspection of buildings, what specific features of the structures should always be investigated or examined closely? Why?

3. What is the most effective device or method for giving warning of approaching trains to operators and men working with noisy machines?

4. What causes the hair-line cracks in shotcrete concrete? What preventive measures can be taken to eliminate such cracks? Explain.

5. What measures can be taken to insure that the manufacturer's instruction manual is read before a man operates a machine? What can be done to insure that these manuals stay with the machines as they are moved about over the railroad?

Send answers to:

What's the Answer Editor
Railway Track & Structures
79 West Monroe Street
Chicago 3, Illinois

Do you have a question you'd like to have answered in these columns? If so, please send it in.

Ties under insulated joints

How many ties should be used under insulated joints? How should they be spaced? Is it advisable to use longer ties than the standard crossties under these joints? Explain.

Don't space ties

By F. J. Cavan
Division Engineer
Lehigh Valley
Buffalo, N. Y.

We do not space our ties; therefore, our track has both supported and suspended joints. These joints are staggered from 10 ft 6 in to zero. However, keeping insulated joints staggered greatly reduces maintenance and results in smoother riding qualities.

Use of three ties under supported joints and two ties under suspended joints, with good drainage and track well anchored, provides a uniform roadbed structure. Therefore, I do not feel long ties should be used.

Use standard length

By A. C. Johnson
Chief Engineer
Elgin, Joliet & Eastern
Joliet, Ill.

Our practice over the years has been to install standard crossties, two under each joint, spaced at standard spacing with the rail ends centered over the space between ties. We are of the opinion that the added cost of using longer ties greatly exceeds the benefits they provide. Therefore, we do not believe it advisable to use longer ties than the standard crossties under these joints.

Prefers suspended joint

By M. W. Cox
Division Engineer
Louisville & Nashville
Corbin, Ky.

In my opinion the best results will be obtained by placing two ties under the joint equally spaced from the rail ends, and spaced 19 and 21 in on centers. This should give the maximum support to the joint available from a given roadbed. If one tie is spaced directly under the center of the joint it will receive the full impact of passing wheels, and will be difficult to maintain. Since the major portion of track surfacing and some smoothing operations are now performed by machines, I do not believe satisfactory results can be obtained if ties are spaced closer than 19 in on centers.

I would not recommend ties longer than standard ties under insulated joints, unless it was known that they were to be hand tamped and would be tamped for the additional length.

Make supported joint

By L. G. Lawson
Roadmaster
Canadian National
Melville, Sask.

Ties should be spaced in insulated joints so that one tie is directly under the ends of the rails. By doing this and leaving a 6-in space between ties, three ties can be used directly under the 36-in joint bars now most commonly used. By using ties in this arrangement we get the best bearing directly under the ends of the rail which is the weakest point of any joint. I believe that the same method should be used with 25-in angle or splice bars. While we would then not be able to get three ties within the splice bar we will protect the weakest spot.

Ties cannot be spaced less than 6 in apart now with the use of multiple tampers and especially the compaction-type tamping machines where the tamping head moves back and forth. They should, however, be placed as closely together as practical.

All maintenance men and officers will agree that rail joints are a headache at all times to track maintenance. Bolts become loose in spite of all that we can do. When this occurs there is always some motion at the ends of rails

and by placing a tie directly under the rail ends this motion is kept to a minimum.

Owing to the ballast regulators, scarifiers, and ballast cleaners now being used it is not practical nor desirable that joint ties be any longer than those used on the other parts of the rail section.

Use sound crossties

By S. B. Austin
Chief Engineer
Georgia & Florida
Augusta, Ga.

Under an accelerated program of providing grade crossing signals, the question of construction and maintenance of insulated joints has been given renewed attention. Since we do not have signals on this railroad, other than at grade crossings, interlockers, etc., perhaps we did not give this feature of track maintenance the consideration it deserved. However, with an increasing number of insulated joints being installed, we have set up certain standards for our track forces.

First and foremost, track timber at and adjacent to insulated joints must be sound. In cases of new joints, we require new timbers and plates. Ties are normal size, length and spacing, as a departure from the norm creates another problem in mechnaical maintenance. Ballast must be in good condition. Any evidence of fouling requires renewal, as obviously a pumping joint will quickly lead to trouble. A further measure against pumping is providing good rail at the joints. This we accomplish by replacement or cropping. Standard maintenance provides that bolts be kept at proper tension, the joint be well tamped and proper measures be taken against rail running.

The above practices have so far indicated that special timbers are not necessary as we have experienced little trouble in insulated-joint maintenance under our program.

Spraying paint in pockets

When using paint-spray equipment while painting bridges, how are the surfaces in corner pockets coated properly? Explain procedure.

Use Light Coats

By Thomas L. Fuller
Supervisor of Structures
Southern Pacific Lines
Houston, Tex.

The proper cleaning and painting of corner pockets on steel bridge structures is one of the most difficult, and yet most important, aspects of the job. Many pockets are almost inaccessible for proper cleaning and painting, yet moisture collects within the pocket causing corrision and resultant loss of metal. The column base of the towers supporting steel viaducts is an example of such a pocket. Other examples are the interior of grillages and shoes supporting a steel span and the interior of chord sections and end posts.

On the Southern Pacific Lines in Texas and Louisiana, sandblasting is used to clean the surfaces prior to application of the paint covering. The sand-blast nozzle is worked into the pocket and maneuvered so as to thoroughly clean all surfaces. Loose sand is blown out with air stream and first coat of red lead and oil sprayed immediately. Due to humidity and other climatic conditions of most of our territory, sand-blasted steel must be covered the same day it is blasted. Otherwise a fine rust film forms, necessitating another light blasting.

In pockets where coverage is likely to be incomplete and holidays exist. a light spray (approximately ½ mil thickness) is applied and allowed to dry. Then another light spray is applied and so on until 2 to 2½ mils dry film thickness is obtained. Experience has shown that a series of light sprays is superior to one or two heavy sprays. If too much paint is sprayed on the surface, it will tend to sag and run, leaving a reduced film on the high spots. By spraying lightly and permitting to dry between sprayings, satisfactory coverage and film thickness can be obtained.

Internal-mix nozzles

By W. R. Hyma
Assistant Engineer
Santa Fe
Chicago, Ill.

The difficulty in spraying corner pockets arises from the rapidly expanding volume of atomizing air. This causes bounce-back and eddy currents that prevent the paint particles from reaching the surface in sufficient quantity. Thus, any technique or equipment that will eliminate or minimize this bounce-back will solve the problem.

These pockets, such as that formed by the stiffener angle and the two legs of the flange angle on plate girders, are often extremely vulnerable to corrosion. This accentuates the problem. For this reason, serious consideration should be given to the use of brushes or daubers on these trouble spots to insure adequate protection. If this is done, best results are achieved by brushing in advance so that paint is dry to the touch before spraying the surrounding areas. Ordinarily, this technique will not delay the work or add appreciably to the cost as it is a rare bridge that is completely accessible to spray painting anyway.

While brushing may be the most positive answer, satisfactory results can be obtained with spray equipment if properly used. Most railroad paint gangs are equipped with pressure spray outfits, either tank or pump, and use guns with external mix nozzles. When spraying corners with this set-up, the atomizing air should be regulated to the minimum amount that will still properly break up the paint. Reducing the paint flow with smaller nozzles will permit using less air also. Consequently, it may be worth while to experiment with various nozzle and air-cap combinations. Best results will be obtained by spraying each surface in turn with the gun held perpendicular to the surface rather than spraying directly into the corner.

Far better results can be obtained, however, by converting the external-mix guns to internal-mix nozzles for everything except fast-drying materials such as lacquers. Since the internal-mix nozzle, as the name implies, mixes the air and paint inside the nozzle and requires about half as much air at about half the pressure as the external mix, the bounce-back from corners is greatly reduced. At the same time, overspray and fogging are held to a minimum. This means less waste of

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material and less danger of damage claims. These advantages will usually make the nominal cost of conversion a good investment.

If a complete change of equipment is within the realm of possibility, the relatively new "airless" spray should be considered. This equipment utilizes a high-pressure paint feed through a very small nozzle orifice to break up the paint instead of using atomizing air. The principle is similar to a garden hose where, given adequate pressure, a fine mist can be obtained by reducing the size of the nozzle opening.

With no atomizing air present, there is no difficulty in spraying into corners, and overspray and fogging are again greatly reduced. Other advantages include a heavier application which often permits one-coat coverage and easier operation, with just the one small, flexible, material line connected to the gun. The higher first cost, the absence of air at the gun to blow off loose scale or dirt, and the small orifice which is subject to wear and clogging, are the chief drawbacks.

Uses air blast

By R. A. YOUNGBLOOD
Process Supt.—Bridges & Buildings
Central of Georgia
Savannah, Ga.

These pockets or corners are usually in hard-to-get-at places and are sometimes almost inaccessible to paint with a brush or ordinary spray gun.

The corners or pockets first have to be cleaned properly which is almost impossible to do, due to the usually tight location and inaccessability. Sand blasting will do it but the cost is prohibitive.

Methods used on this property are as follows: The pockets and corners are cleaned of loose rust and dirt by a direct blast of compressed air. A grease-type coating is then sprayed on the steel, using a light, aluminum, garden-type spray gun. The latter has a reach of about 36 in and can be extended simply by screwing another piece of tubing into place. This gives a length of 6 to 9 ft, depending of course on how much is needed.

The material is handled by a positive-displacement-type pump and is therefore more stable and has practically no overspray or drift, due to not being atomized by compressed air. This gives complete coverage and the corners and pockets may be puddled with the materials, if desired.

Mechanizing rail-laying gangs

What operation in a rail-laying gang is in the greatest need of mechanization? What other rail-laying operations need mechanizing? Explain.

Place tie plates

By L. G. LAWSON
Roadmaster
Canadian National
Melville, Sask., Can.

The operation that requires mechanization most on a rail-laying gang depends entirely on what management wants—saving of manpower or a better job. All machines do a better job than can be done by the old hand method. The machine which saves the most men with the heavy rail now being used is without any doubt the rail layer. However, the machines that tend to make a much better job are the adzers, bolters, spikers and gagers.

Some of the machines used do not save as much manpower as others. But all do a better job. A job of hand adzing cannot compare with one done by power adzers. The same applies to spiking and bolt tightening.

On our railway we use all power machines for laying rail with the exception of rail-anchor applicators. As these are perfected they will no doubt be used and will do a better job than that done by hand.

About the only work done by hand now is setting and driving gager and tie plugs, placing tie plates and inserting bolts in joints. Possibly machines can be invented to do this work. If this is once done, we can then state that a rail-laying gang is fully mechanized.

Tie-plug driver

By J. W. NEIKIRK
Manager Roadway Maintenance
Norfolk & Western
Roanoke, Va.

Since the early 1930's considerable progress has been made by the manufacturers in modernizing the various units of work equipment comprising the mechanized rail-laying force.

A reasonably satisfactory machine is now available for performing practically all types of work necessary in connection with rail renewals, except one for setting and driving tie plugs. To conserve the life of crossties properly, which is one of the major items of maintenance cost today, it is urgent that tie plugs be driven firmly and, if possible, with a precision production machine.

It requires about eight laborers to set and drive tie plugs ahead of a large rail-laying force to avoid delay. There are a considerable number of the plugs broken off through carelessness when about half driven and by the improvised tools furnished for driving them. There is also a tendency to slight the work in the absence of constant supervision.

In my opinion, no single item has contributed as much to irregular gage and unsightly, kinky track as improperly plugged ties. This condition is created, of course, by changing the weight of rail and size of tie plates in connection with rail renewals. The tie plugs are not driven firmly into sound ties, which, unless all spike holes are prebored, results in the spike seeking the line of least resistance. Tie plugs not firmly driven also result in considerable breakage of drill bits of mechanical gaging machines.

A precision tie-plugging machine would not only reduce the cost, but would result in a perfect gaging job with the gaging machines available for use when renewing rail.

Wants tie-plug grout

By L. C. COLLISTER
Manager Tie & Timber Treating Department
Atchison, Topeka & Santa Fe System
Topeka, Kans.

In my opinion the application of tie plugs in the used holes in the tie is one that needs mechanization. As it is now,

there are approximately 4 to 6 men distributing these wood plugs. They start the plugs into the holes. Then two men come along with an implement designed to crush toes and attempt to drive the plugs into the holes to fill them completely. In most instances, the thought prevails that this is a relatively unimportant job. Consequently, little supervision is given to this work. The result is that the plugs are either broken off or knocked out of the hole entirely, and thus do not fill their purpose.

It would seem to me that a solution similar to grout could be extruded into the free holes by a machine. Requiring only one operator, it would release 5 to 7 men from this operation and a much better job could be done. The material in this solution should have the following characteristics: (1) Provide a bulky material to fill the empty hole; (2) provide resistance to lateral stresses when spikes are driven into adjacent areas to prevent a spike-killed condition from arising; and (3) be relatively easy to adze when a new rail-relay program would develop years later.

Another rail-laying operation that needs mechanizing is the driving of track spikes. Now, the spikes are distributed by a group of men. Then they are picked up and started into the hole in the tie plate with a couple of hammer blows, and driven by air jacks.

If a machine could be developed which would automatically feed these spikes into a hopper and on down to the area where they would be used, and then driven into place, a considerable labor saving would be developed. A machine could probably be developed that would tend to drive the spike much straighter than is normally the case by hand, thus making for easier gage maintenance.

Better material unloading

By O. H. CARPENTER
Chief Clerk to Division Engineer
Union Pacific
Pocatello, Ida.

In general, rail-laying operations are probably the most mechanized of any railroad work. Nearly all machines which have been developed to assist in rail laying are now being used. There are, however, some parts of the rail-laying operation which could be further mechanized. The matter of distributing material should be given greater attention; in particular, the unloading of tie plates and switches, including switch plates. Unloading of tie plates by hand from gondola cars is a very difficult and dangerous operation with the heavy tie plates now being used. If tie plates could be banded into bundles of about 100 plates and a crane used to unload them at proper intervals, much labor would be saved, with a better job of distribution. Also, there would be less danger of plates being lost down fills, into streams, etc.

This also applies to the matter of switch plates. Ordinarily, on a rail relay involving a number of switches, the plates are generally loaded in the bottom of the car, all mixed, with plates for right and left hand switches. Also, switches of various lengths are all thrown together in the same car. These conditions make it necessary to completely unload the car, and sort plates into sets required for various switches, before attempting to unload the plates required at any individual switch. Frequent mistakes are made in

(Continued on page 44)

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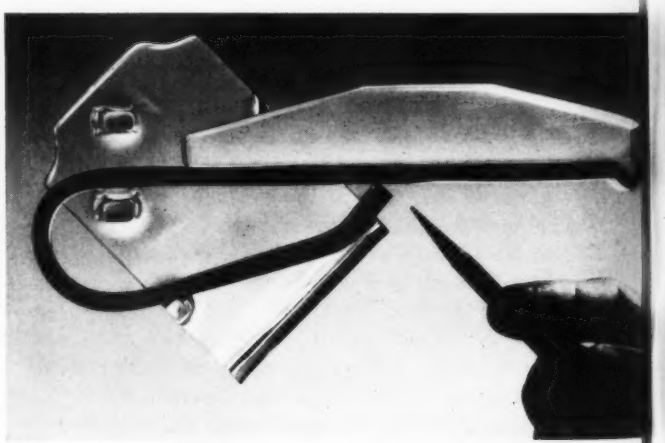

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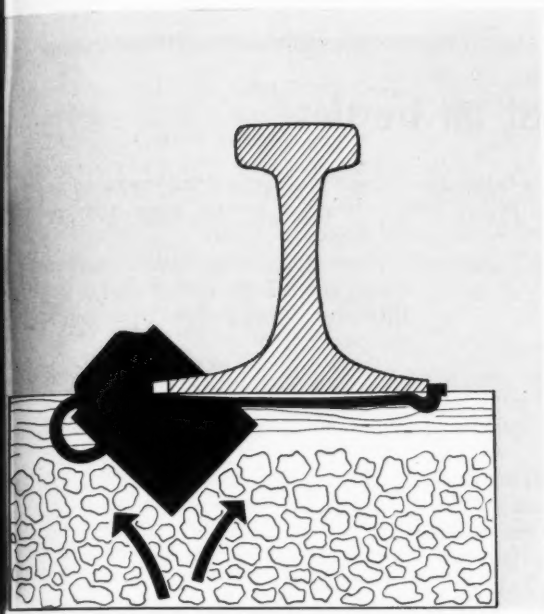

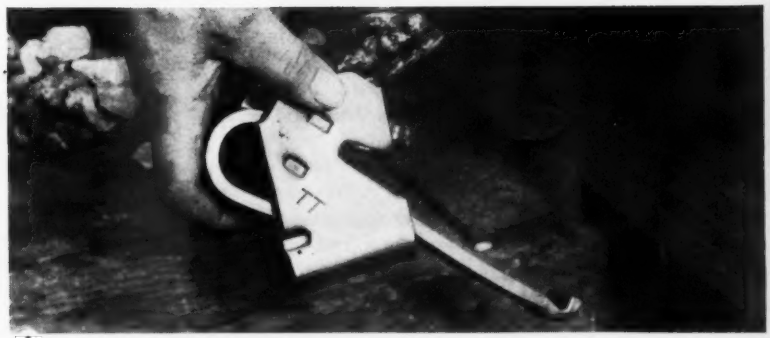

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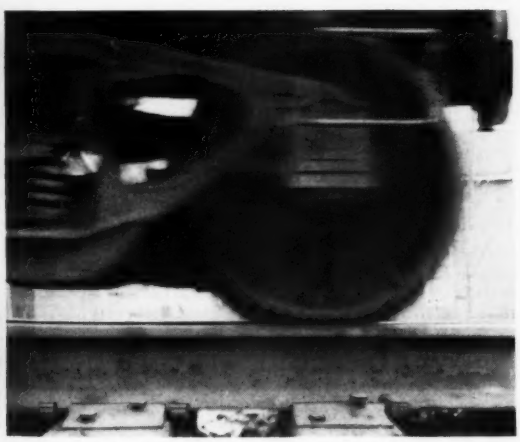

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(Continued from page 41)

sorting, which later cause further delay and additional work.

If plates were banded into sets and unloaded with a crane at the time the frogs, points and other parts of switches are unloaded, the cost of unloading would be more than cut in half.

Where joint packing is used, no machine has yet been developed to handle the matter of applying the packing to the joint bars. This requires a lot of hand labor.

The matter of setting spikes is still practically all hand work, and no satisfactory machine has yet been developed to handle this work.

Practically all other parts of the rail-laying operation are now mechanized in some manner. It might be possible that better machines could be developed than those now being used. However, most of those in use have been tested by long use and have proven themselves to be efficient, and, in general, satisfactory.

The matter of picking up released material, especially the smaller components of the track, is still generally hand work. This is largely due to the necessity of sorting the material as it is picked up for loading into separate cars in the field. It should be possible to develop some mechanical means of doing at least part of this work. Or, if this is impractical to do in the field, it should be possible to load material indiscriminately, and have the sorting and classifying done at stores points. At these locations there is plenty of room, and the matter of traffic and clearing of trains does not enter into the work being done.

Renewing ballast on trestles

What is the most economical method for renewing cemented ballast on concrete-slab trestles when other repairs are not required? Explain in detail.

Uses bulldozer

By R. A. YOUNGBLOOD
Process Supt.—Bridges & Buildings
Central of Georgia
Savannah, Ga.

When traffic permits, the following method is used:

The spikes are pulled, and the rails are disconnected at each end of the trestle, or in proper lengths, according to the allowable work time between trains. A bulldozer is then used to pull the rails clear of the trestle, or job, as the case may be.

Hooks or forks of the proper design are bolted on the dozer blade. The ties are then picked up by these hooks or forks and carried by the dozer to the end of the trestle or job and piled.

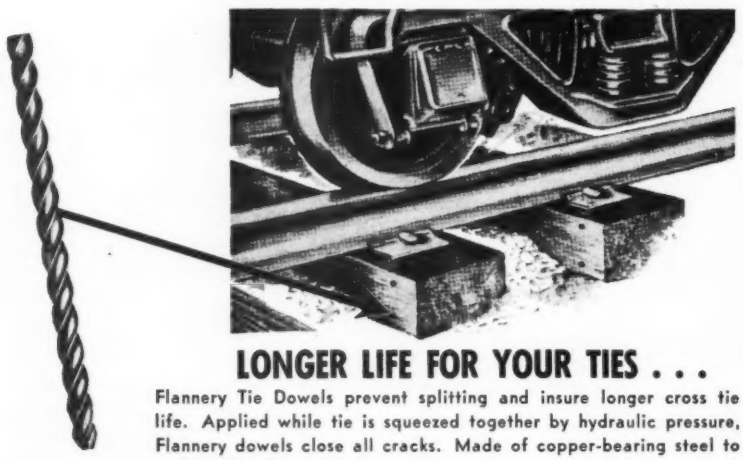
Following this, the forks or hooks are removed from the dozer blade and the cemented ballast is plowed out by this machine. This waste ballast is used as a protection from scour around the piles, piers and bulkheads of the trestle. The weep or drain holes are then cleared. The forks are again placed on the dozer blade and the ties are carried back on the trestle and positioned. The rail also is pulled back in position and spiked up. New ballast is unloaded by a work train or a local freight. The track is then surfaced and lined.

Lists 10 factors

By R. H. JORDAN
Division Engineer
Erie
Huntington, Ind.

Each individual concrete slab trestle with cemented ballast must be studied as to several basic factors which are listed below and which will determine the most economical method of doing the work.

(1) Length of concrete-slab trestle.
(2) Depth of cemented ballast.
(3) Single or double-main track.
(4) Branch, yard, siding, or industrial track.
(5) Time interval between trains.
(6) Length of continuous period of time track can be taken out of service.
(7) Time of day when traffic densities are lightest and which will permit work being performed at non-penalty rates of pay.



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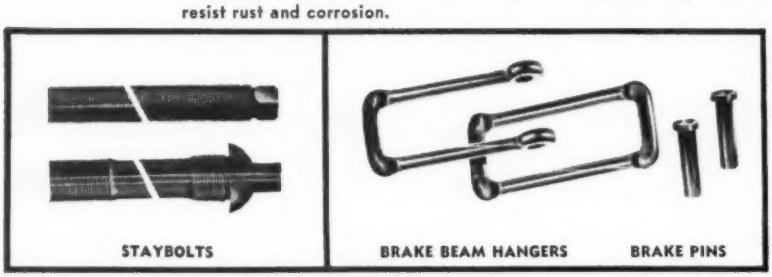

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(8) Available remaining main track, tracks or parallel sidings for operation of trains while work is being performed.
(9) Advisability of temporarily shifting of track on concrete slab culvert while part or all of cemented ballast is being removed.
(10) Consideration of bunching of trains to allow a sufficient time interval to permit removal of track, cemented ballast and restoring track at reduced speed.

In general, the most economical method would be to take the track out of service, remove ties, rail and fastenings and use power operated off-track equipment to remove cemented ballast.

In most cases the cemented ballast can be wasted at the site for additional subgrade and eliminate further handling.

On long concrete-slab trestles going through cities, it is more economical to load the cemented ballast into railroad cars for later unloading. Two or more off-track rubber-mounted cranes should be used to get the maximum about of cemented ballast loaded during the time interval the work train can occupy the adjacent track.

At locations where there is a single main track with heavy-traffic density throughout the 24-hr period, it will be necessary to support the track structure on "I"-beams or heavy timbers over which trains will operate at reduced speed. The cemented ballast will then need be removed by laborious hand methods.

Whatever method is the most economical for the particular trestle and location it is good economy to apply a fresh waterproof coating, replace the deteriorated expansion material, and clean and repair the slab drainage to be sure that it is functioning properly. On some of the older concrete-slab trestles, additional drainage may be necessary to carry free water quickly off the concrete slab to adjacent area.

Placing of riprap

What factors determine when riprap shall be side-dumped or thrown loose and when it shall be hand-placed, or hand-placed and grouted? Explain.

Use actual needs

By J. V. JOHNSTON
Assistant Chief Engineer
Gulf, Mobile & Ohio
Mobile, Ala.

The AREA definition of riprap is "rough stone of various sizes placed compactly or irregularly to prevent scour by water."

The riprap that we buy on this railroad is rough stone of various sizes, but none too large to be handled by one man. It is used at locations in side ditches on the right of way where scouring of the bank is considered a hazard to the track roadbed. It is also used at the ends of culverts and around trestle and bridge headwalls, abutments and piers where scour occurs.

The riprap is loaded in specially assigned low-side gondola cars and held under load until needed. Then they are shipped, usually one car at a time, to the nearest terminal. From there they are handled by local freight trains and unloaded where required by hand with section forces.

The riprap is then placed by hand because in this way we can use only what riprap is actually needed. And, being so placed, it makes a neater job than when it is merely dumped in place.

The riprap is grouted after being placed only when the current of the water is swift and there is possibility of the riprap protection being washed away unless it is cemented together.

We seldom use side-dump cars as the use of such cars requires that they be handled in trains at restricted speeds. However, there are times when a quantity of riprap is required and it is economical to handle it in side-dump cars with work trains.

Several years ago our main-line embankment was being threatened by the encroachment of the Mississippi river. A track was installed there and side-dump cars by the train load were placed on it. An air compressor and pipe line was provided to dump the cars and the riprap was pushed into the river with bulldozers.

Conditions are different

By H. J. WECCHEIDER
Engineer Maintenance of Way
Erie
Youngstown, Ohio

It is difficult to establish a definite manner which would govern the various methods of placing riprap. It is only fair to state that experience in the use of riprap at certain locations should be a guide at the discretion of the engineer in charge. Also the economic factor should govern as to whether riprap should be side-dumped, thrown loose or hand-placed and grouted.

It should be understood that side-dumped riprap will result in about a 20 per cent waste, because of pieces rolling out into the stream where they lose their effectiveness for bank protection. The expense of rehandling the material back to the embankment is high.

The above method would be effective only where the operation would consist of at least 20 dump cars in transit and 20 loading. It would be necessary that the riprap supply in this case be extensive and readily available for quick loading.

At times when it is necessary either to fill out a bank which has been washed out to restore the use of the track or to strengthen the embankment to prevent further washout, riprap could be either side-dumped or thrown loose. Under these conditions, this riprap should be rehandled and more carefully placed when the elevation of the stream permits.

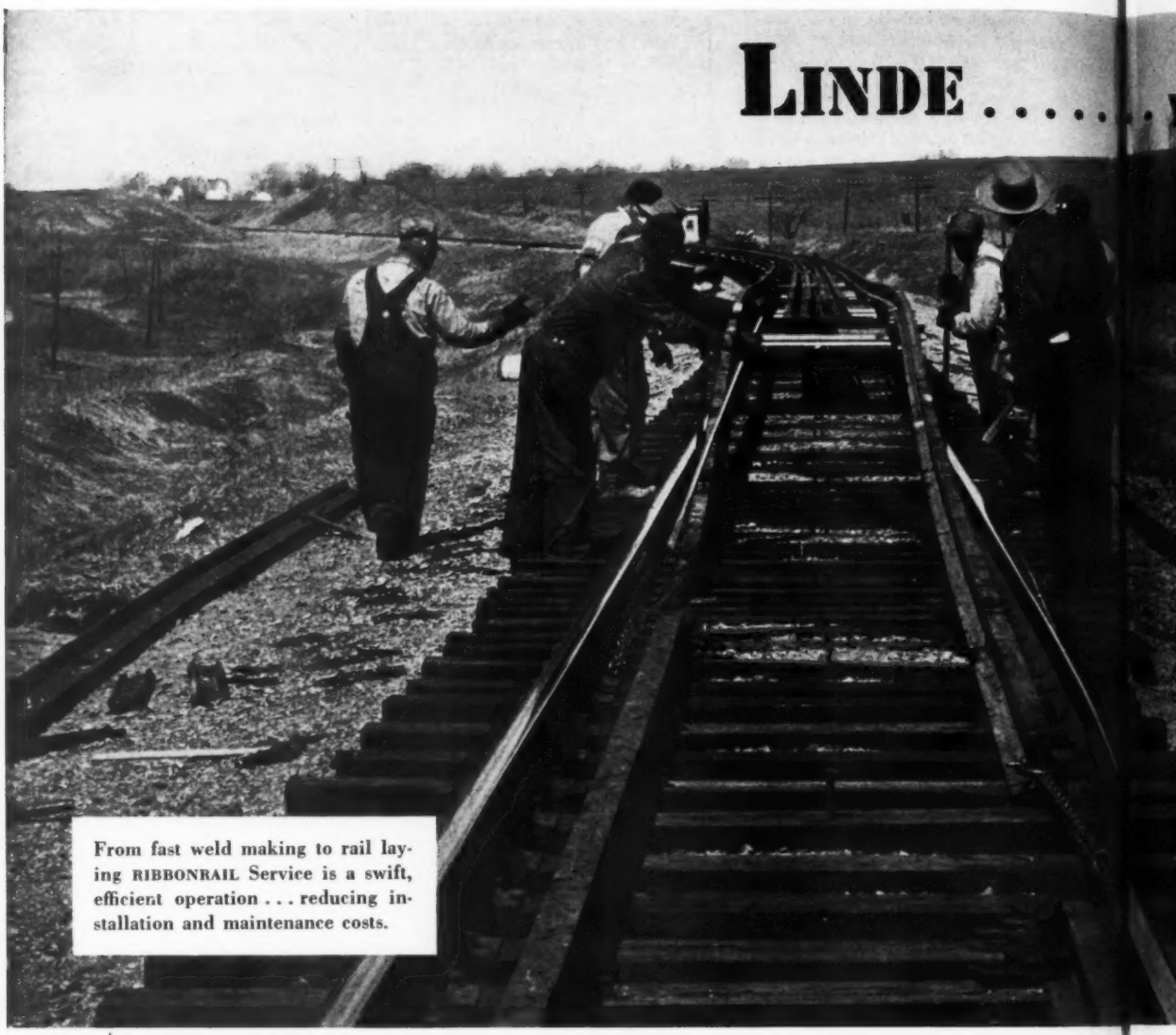
It should be considered that, where the riprapping to be done is extensive, it might be more economical to side-dump it with a certain percentage of waste in favor of saving work-train days which in itself results in a large expenditure.

Loosely placed riprap, where there are strong currents in streams, causes eddies around the pieces and creates pressure in the openings so that rapid erosion behind the riprap generally results. Loosely placed riprap should primarily be used on banks of streams where the current is not too strong and the stream does not meander. This again depends on the size and weight of the riprap.

Hand-placed heavy riprap affords adequate protection on the banks of streams with heavy currents and sharp bends. This is particularly true on high banks where streams rise to excessive heights at flood stage. Hand-placed

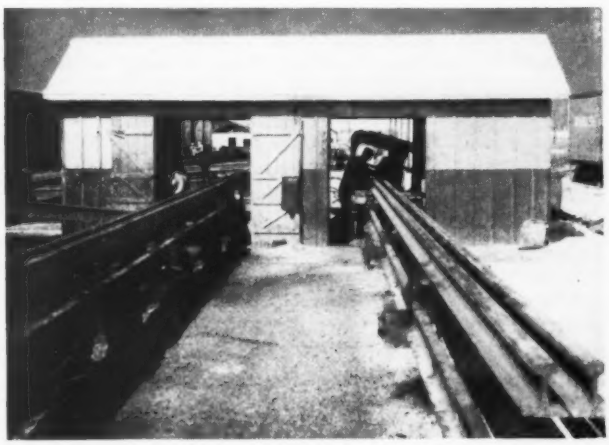
(*Continued on page 48*)

LINDE . . . . . .

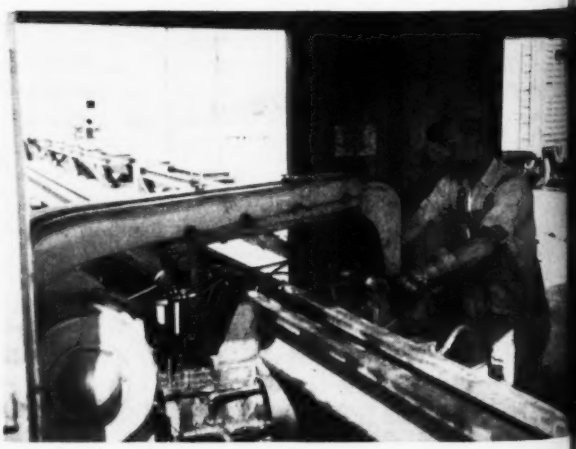


From fast weld making to rail laying RIBBONRAIL Service is a swift, efficient operation . . . reducing installation and maintenance costs.

General view of Wabash's dual rail welding setup. Here a double line of rails enters rail-end preparation shed. ▼



Here, rail ends are cut and cleaned prior to welding. Single saw speeds operation by preparing 4 ends simultaneously. ▼



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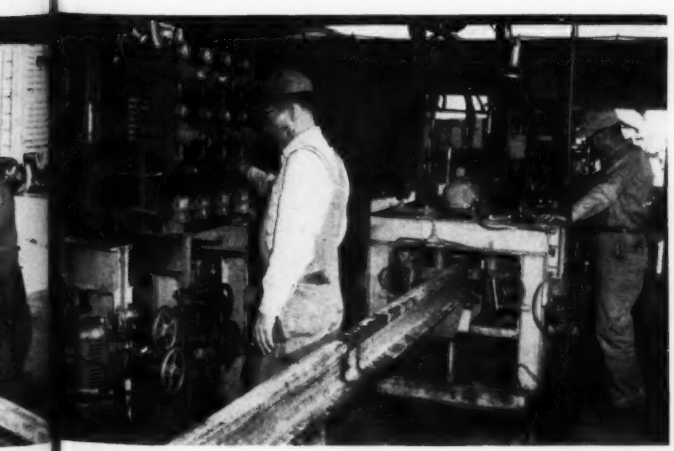
Close-up of twin welding machines where rails are oxy-acetylene pressure-welded at 2250 deg. F. Normalizing, grinding, and weld testing complete the operation. ▼



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What's the answer? (cont'd)

(Continued from page 45)

riprap tends to hold channel material intact and is least affected by the stream water so that swirling water is prevented and scouring is not prevalent.

Along the banks of large bodies of water where there is wave action during high winds, hand-placed riprap is desirable since it provides more or less permanent protection. Also, at locations where the job to be done is comparatively small and involves only a few days' work with a limited quantity of riprap, it could be placed piece by piece with the heavier pieces at the toe and the smaller ones at the top.

In regard to grouting riprap, the most suitable locations for this procedure is where the riprap is not large or heavy enough to withstand displacements by high waters and swift currents. In certain cases, small riprap is desirable as it is easier to place and also provides a smooth surface. In such locations, grouting is desirable. This naturally adds to the permanence of the work.

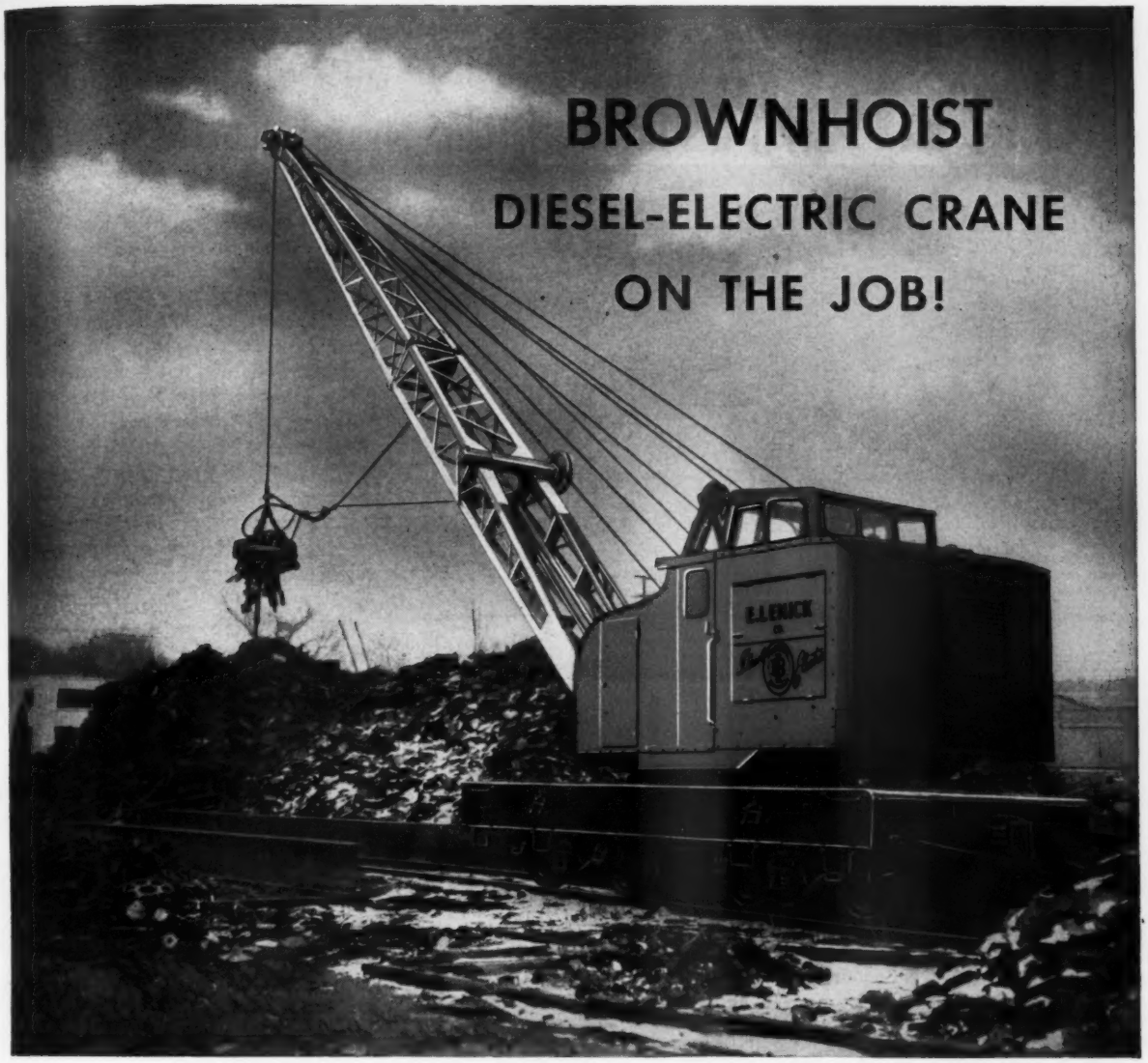
Considerable study of conditions in such cases should be made as the cost of grouting over an extensive area is expensive. In general, it would appear that this type of work should be carried out to protect bank slopes where water is on both sides. Well-grouted riprap in such cases would help prevent fills from becoming saturated, and also eliminate erosion.

Describes installations

By W. R. BJORKLUND
District Engineer
Northern Pacific
St. Paul, Minn.

Where riprap is called upon both to protect against moving water as well as to resist the action of large floating debris, such as trees, ice floats, etc., then it is almost a necessity that the riprap be hand placed. Hand-placed riprap presents a smooth face so that floating debris will deflect off of the surface rather than dislodge the individual pieces of rock.

If the rock available is unusually expensive or scarce, then it may be more economical to hand-place the rock because a greater area can be protected by hand-placing the rock than by dumping it loose. For example, hand-placed riprap may only be 12 to 18 in



211

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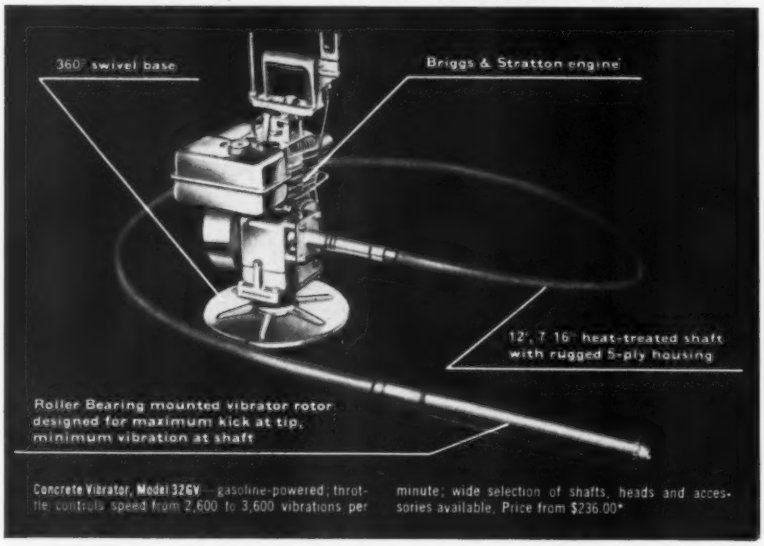
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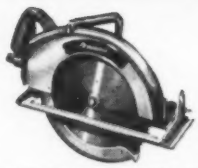

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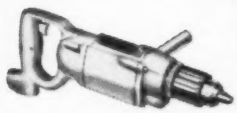

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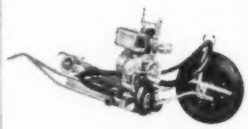

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What's the answer? (cont'd)

thick, whereas loose-placed rock might have to be twice that thick, to adequately protect a bank. Further, if the maximum size of rock available is not sufficiently large to be stable in swift-moving currents, it is necessary that the riprap be hand-placed.

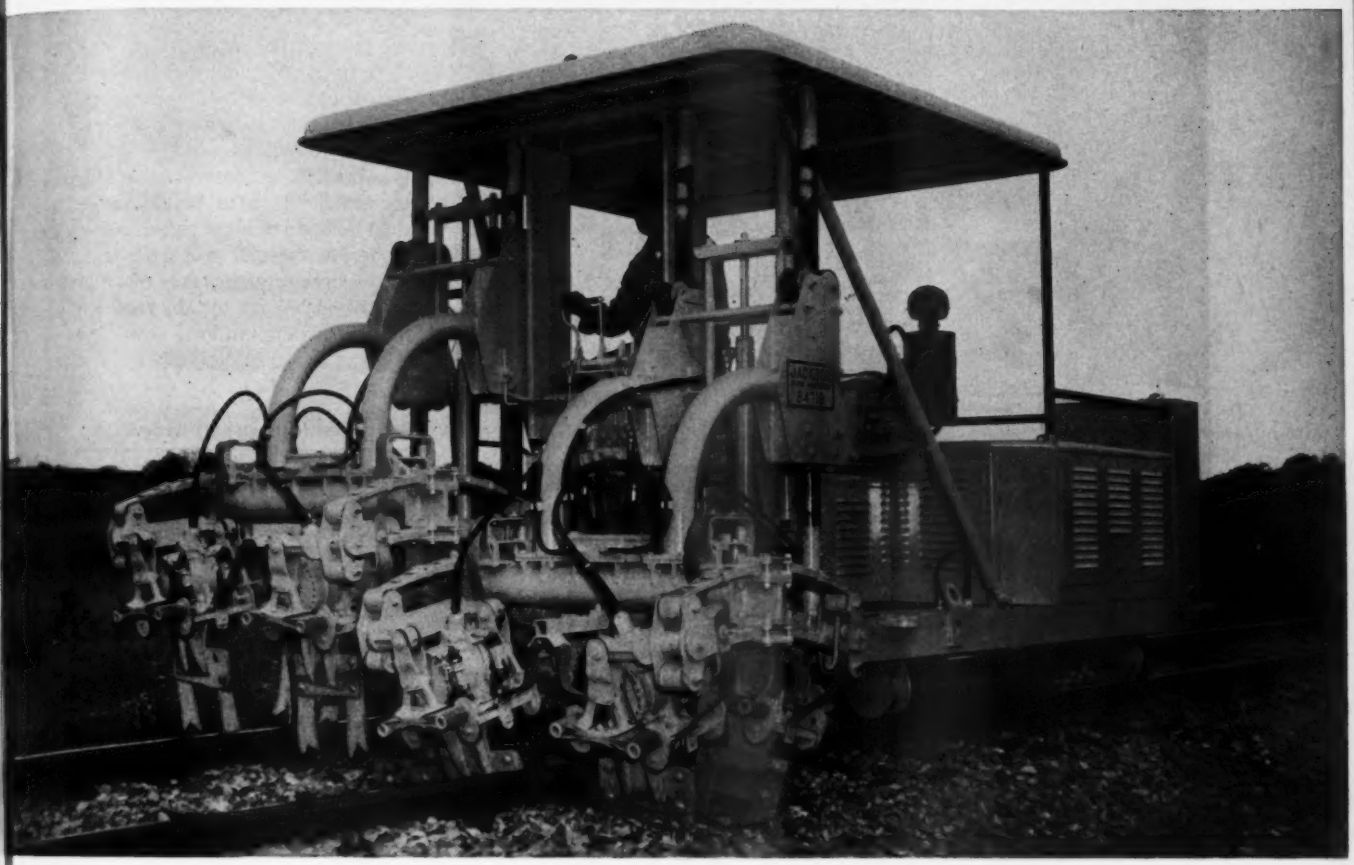
The single most important factor in placing hand-placed riprap is to provide a stable toe. This is done by excavating a trench during the time of extreme low water to a point some distance below a gravel bed of a stream. A toe which will not become undermined due to erosion is then built in it. We have found this will give us satisfactory support on which to construct hand-placed riprap. Any undermining of hand-placed riprap immediately permits the rock higher up the slope to ravel and become dislodged, thereby nullifying the expense and advantage of the hand-placed rock.

Loose-placed rock of adequate size and in sufficient quantities will provide the necessary protection in streams not subject to heavy ice flows. The Yellowstone river, which parallels the Northern Pacific lines for almost 400 miles in Montana, is well known for its severe spring break-ups. Ice gorges form and become dislodged at periodic intervals along this large river. Such ice gorges will raise the level of the river as much as 25 or 30 ft in a matter of a few hours. Likewise, the break-up of the gorge will cause a drop in the water surface in a relatively short time.

Even under those severe conditions, we have found that carefully constructed hand-placed riprap will withstand the forces of ice floats measuring as large as a two-car garage. For the lower portion of the Yellowstone river paralleling the Northern Pacific main line, we find it necessary to hand-place the rock in order to make it withstand the forces of the river. However, in the upper reaches where the flow is less and the ice gorging is not as severe, we find that loose-placed rock is satisfactory.

Grouting of hand-placed riprap is merely a refinement providing a still smoother surface for resisting floating debris. If concrete is available and can be readily dumped over the face of the riprap, we find that it can be brushed into the interstices of the rock quite economically. Normally, the refinement of grouting is not necessary. At

The JACKSON TRACK MAINTAINER



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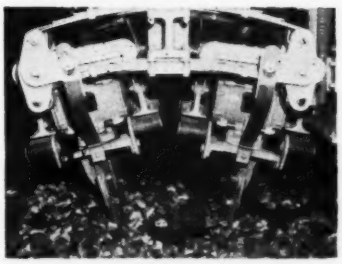

Nowhere will you find a tamping machine that closely rivals the JACKSON TRACK MAINTAINER in its dual function of quality production tamping and maintaining track of finest characteristics under all conditions; which accounts for the fact that the vast majority of leading railway systems in America use them in large numbers.

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What's the answer? (cont'd)

culverts where it is desirable to eliminate the flow of water through the riprap, the added refinement of grouting the face may be worth while.

In an emergency obviously the riprap would be side-dumped or thrown loose in order to get adequate protection as quickly as possible. Also, if it is impossible to construct a satisfactory toe upon which to build the riprap, then dumped or loose riprap is the only answer as the rock will settle and shift as the undermining takes place and it will be necessary to add rock for replacing the amount lost.

Biographical briefs (cont'd)

(Continued from page 10)

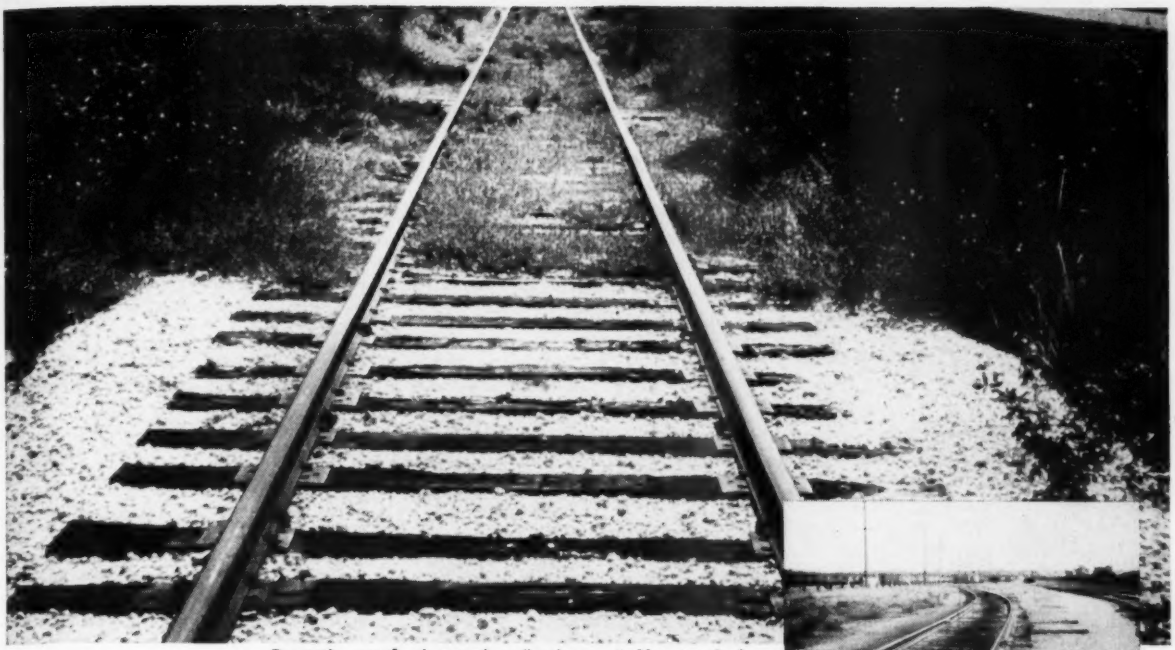
entered the service of the Illinois Central in June 1948 as a junior engineering aid. In December of that year he joined the EJ&E as field engineer, later advancing to resident engineer and assistant engineer. He was promoted to system engineer planning and development in October 1957, the position he was holding at the time of his recent promotion.

Lawrence B. Boyd, 35, who was recently promoted to assistant engineer of structures of the Boston & Maine at Boston, Mass. (*RT&S,* Jan., p. 10), was born at West Southport, Me., and graduated from the University of Maine in 1950 with a Bachelor of Science degree in civil engineering. He started his railroad career in March 1952 as a structural designer at Boston. In February 1955 he was promoted to assistant structural engineer and later that year was appointed project engineer. The following year he was promoted to assistant bridge and building supervisor at Boston. He was promoted to assistant to engineer of structures in January 1958, the position he held at the time of his recent promotion.

John J. Tibbits, 60, who was recently promoted to office engineer on the Erie at Cleveland, Ohio (*RT&S,* Jan. p. 10), was born at Brooklyn, N. Y. After graduating from high school he augumented his education with extension courses from the Brooklyn Polytechnic Institute and the John

Lawrence B. Boyd
B&M

J. J. Tibbits
Erie



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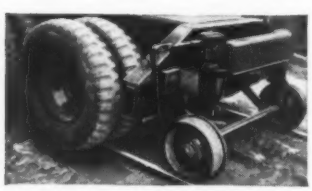

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Biographical briefs (cont'd)

Huntington Polytechnic Institute and correspondence courses. Mr. Tibbits entered railroad service on the Erie in 1918 in the general office of the engineering department. In 1921 he was appointed rodman and was subsequently advanced to levelman, transitman and inspector in the construction department at various locations. In 1943 he was appointed draftsman in the general drafting room at Cleveland. Mr. Tibbits was appointed draftsman in the department of structures in 1946, subsequently being promoted to designer and senior designer. He was advanced to assistant engineer in the general drafting room in 1954, the position he held at the time of his recent promotion.

Rufus D. White, 33, who was recently promoted to division engineer on the Frisco at Ft. Smith, Ark. (*RT&S,* Jan., p. 10), was born at Eufaula, Ala. After receiving a degree in civil engineering from Auburn University in 1950 he joined the Frisco as a student apprentice at Chaffee, Mo., later being transferred to Springfield. In March 1953 he was appointed assistant roadmaster at Oklahoma City, Okla. The following year he was promoted to roadmaster at Chaffee and in January 1956 was transferred to Ft. Worth, Tex. A year later Mr. White was further advanced to assistant division engineer at Chaffee, the position he held at the time of his recent promotion.

W. D. Taylor, 43, who was recently promoted to assistant to chief engineer of the Virginian at Norfolk, Va. (*RT&S,* Feb., p. 10), was born at Princeton, W. Va., and received his higher education at the Virginia Military Institute. Mr. Taylor entered the service of the Virginian in 1937 as a chainman on the construction of the Morri branch in W. Va. He was promoted to rodman in the division engineer's office at Norfolk the following year and in 1939 he was further advanced to draftsman in the chief engineer's office there. After serving briefly as a second lieutenant in the army during World War II he returned to his former position of draftsman at Norfolk. In 1944 he was appointed structural draftsman there and in 1947 was promoted to assistant engineer at the same location, the position he held at the time of his recent promotion.

James O. Elliott, 33, who was recently promoted to assistant division engineer on the Frisco at Ft. Scott, Kan. (*RT&S,* Jan., p 10), was born at Springfield, Mo., and graduated from the Missouri School of Mines in 1950 with a Bachelor of Science degree in civil engineering. He entered the service of the Frisco on February 1, 1950, as a student apprentice at Tulsa, Okla. In 1952 he was appointed assistant roadmaster there and was advanced to roadmaster at Chaffee, Mo., the following year. Mr. Elliott was transferred to Ft. Smith, Ark., in 1956, which position he held at the time of his recent promotion.

Walter O. Boessneck, 65, who recently retired as office engineer of the Erie at Cleveland, Ohio (*RT&S,* Jan., p. 10), was

(Continued on page 58)

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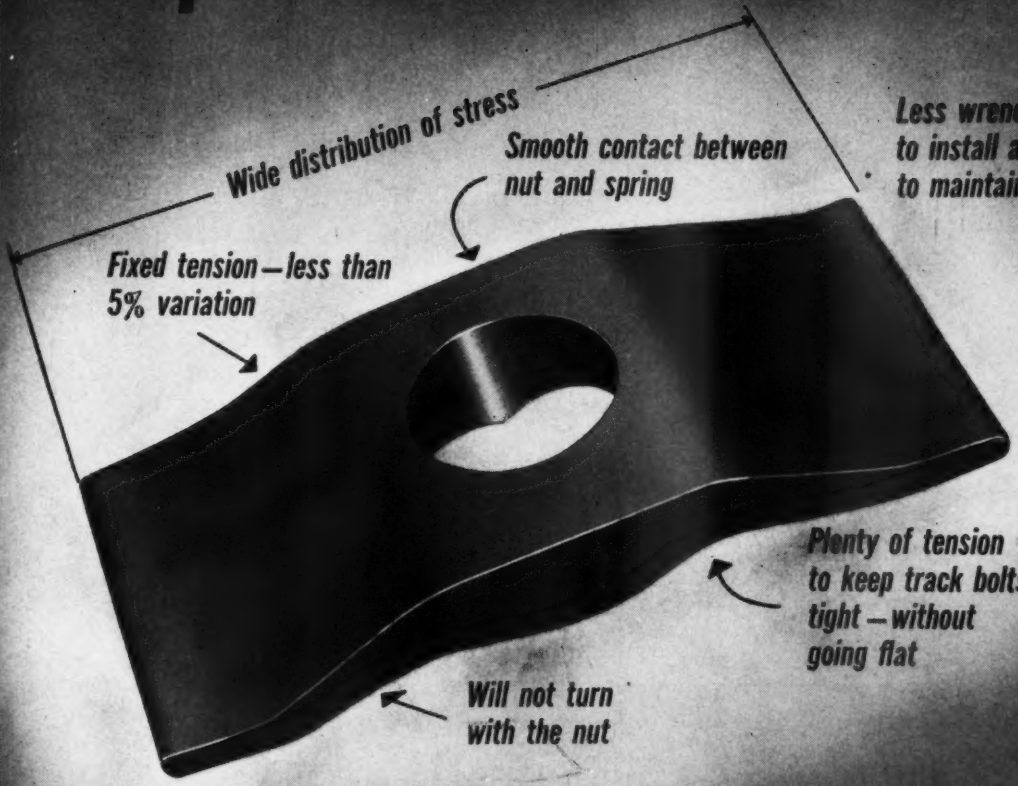
SPRING WASHERS

Keep Track Bolts TIGHT!


Wide distribution of stress
Smooth contact between nut and spring
Less wrenching to install and to maintain
Fixed tension—less than 5% variation
Plenty of tension to keep track bolts tight—without going flat
Will not turn with the nut

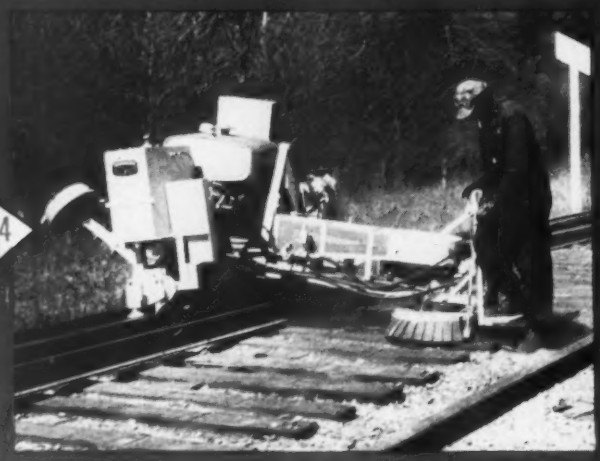
UNIFORM BOLT TENSION
prevents track buckling and pull-apart

HIGHEST REACTION OF ANY SPRING WASHER

Woodings-Verona
TOOL WORKS
VERONA, PA. • CHICAGO, ILL.

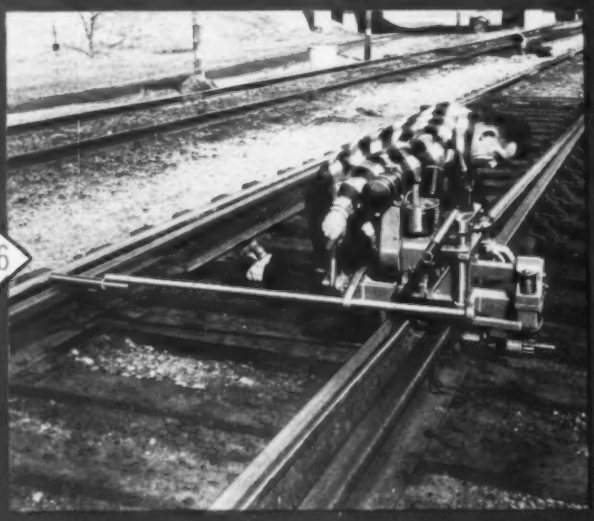
1 POWER WRENCH

2 SELF-PROPELLED SPIKE PULLER

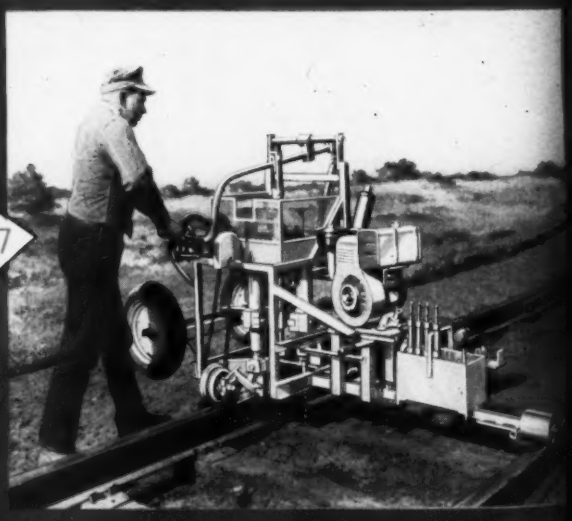


4 SELF-PROPELLED ADZING MACHINE

5 DUN-RITE® GAGING MACHINE



6 RAIL DRILL



7 TIE DRILL

BALLAST ROUTER

Save Time and Money on Relaying Rail with NORDBERG Mechanical Muscles®

These eight machines, shown in the sequence in which they are used for rail laying operations, are part of the full line of Nordberg "Mechanical Muscles" that have been designed, built and proved in use with the cooperation of track maintenance men.

The nation's leading railroads have proved that the Nordberg Track Maintenance Machinery shown here will save time and money on rail laying operations . . . and will improve the quality of the finished job. To stretch *your* maintenance dollars, take full advantage of the savings that are possible by putting Nordberg machines like these to work in your rail gangs.

NORDBERG® *Mechanical Muscles*®

SPIKE HAMMER

1. **POWER WRENCH...** In relaying operations, this fast, powerful tool leads off by quickly backing off the nuts of track bolts. Heavy duty, yet light in weight, this machine is easily handled on or off track.

2. **SELF-PROPELLED SPIKE PULLER . . .** This two-man machine follows the Power Wrench, exerts an upward pull in excess of 12,000 lbs. through spike tongs and pulls from 30 to 45 spikes per minute.

3. **BALLAST ROUTER . . .** Removes high crib ballast and sweeps tie areas clear so that adzing can be done faster, more accurately, and with greater safety. Adjustable for depth, the Ballast Router cuts a flat trench.

4. **SELF-PROPELLED ADZING MACHINE . . .** A one-man machine with greater power to speed adzing. Self-propulsion provides for force feeding into ties, adding to operator's efficiency. Tie seats are adzed level and in same plane.

5. **DUN-RITE® GAGING MACHINE and BRONCO . . .** Follows right behind the adzers. Tie plates are anchored to the ties in exact position, so the head-to-head gage is correct. Speed and extremely accurate and uniform gaging are made possible with the Dun-Rite because tie plates are gaged before the rail is placed.

6. **RAIL DRILL . . .** This compact, light weight drill is easily set up and adjusted for fast, accurate work. Self-tightening chuck is simple, and bit is positively held.

   In actual rail laying operations, the Power Wrench (Illustration No. 1) would now follow the Rail Drill, to uniformly tighten track bolts.

7. **TIE DRILL . . .** Drills two holes at once for rail holding or plate fastening spikes. Operated by one man who can spot and drill 48 holes in the 24 ties of a rail length in just 2½ minutes.

8. **SPIKE HAMMER . . .** Finishing up the operation, this machine, with a properly organized crew, can drive about 800 spikes per hour, 400 on either side of the rail . . . driving all spikes straight, vertical to the tie, and to the correct depth.

Write for complete information about any or all of these modern money-saving "Mechanical Muscles".

NORDBERG MFG. CO.
MILWAUKEE 1,
WISCONSIN

Write For LEASING Plans

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R359

At a moment's notice...

"Runs" to job under its own power

In less than 4 minutes, Tournatractor® travels a mile under its own power to handle railroad maintenance jobs in your yard or along the right-of-way. This 17 mph tractor does not damage tracks or switches, does not trip automatic block signals. It handles a wide variety of chores quickly — cleans drainage ditches, removes slides, cuts down banks, fills washouts, reinforces causeways and bridge approaches. 1 man and 1 machine can do many maintenance tasks in a single day.

Cuts dozing time in half

218 hp L-W Tournatractor not only gets to jobs under its own power in much less time than crawler-tractors can be hauled there . . . it also finishes them sooner. Four speeds forward to 17.2 mph and two reverse to 7.2 mph help you complete most tractor assignments in as little as *half the time* that it takes the average crawler!

Coupler-equipped model available

A coupler-equipped model of this proven rubber-tired M/W machine — the SwitchTractor†, is also available. Besides dozer on front, SwitchTractor mounts standard AAR rail coupler on the rear . . . can help in emergency switch work.

Compare L-W tractor's advantages with those of other units used in your division. You'll see why major railroads and dirtmovers are adding modern LeTourneau-Westinghouse Tournatractors and SwitchTractors to their equipment fleets. Full details, and a demonstration, on request.

†Trademark CT-1890-RR-2/3

Versatile L-W Tournatractor can help other equipment as well as work independently. Here it push-loads a 9-yd D Tournapull®, which is handling long-haul earthmoving along right-of-way. Tournatractor can mount a variety of dozing tools, tow work units. Coupler-equipped model, the SwitchTractor, spots rail cars on emergency request.

LeTOURNEAU-WESTINGHOUSE COMPANY
Railroad Sales Division
Peoria, Illinois
A Subsidiary of Westinghouse Air Brake Company
Where quality is a habit

DEDICATED TO PROGRESS
RPI MEMBER

Biographical briefs (cont'd)

(Continued from page 54)

born at Paterson, N.J. In January 1916 he entered the service of the Erie at Randolph, N. Y., as a chainman, advancing to levelman at Jersey City, N. J., the following year. He was appointed timekeeper at Youngstown, Ohio, in 1918 prior to entering the U.S. Army, where he served with the 312th Engineers of the 87th Division. In 1920 he returned to the Erie as a draftsman at New York. In 1931 he was transferred to Cleveland, Ohio, at the time the Erie moved its headquarters there. He was subsequently promoted to leading draftsman, assistant chief draftsman, and chief draftsman. He was promoted to office engineer in 1954.

A. E. Burford, 63, who was recently promoted to supervisor bridges and buildings on the Illinois Central at Memphis, Tenn. (*RT&S,* Feb., p. 10), was born at Sardis, Miss. He entered the service of the Illinois Central in 1914 as a bridge and building laborer at Memphis. Subsequently Mr. Burford was promoted to bridge carpenter and later to assistant bridge foreman, both at Memphis. He was advanced to bridge foreman there in 1926 and further advanced to general foreman bridges and buildings in 1942, also at Memphis, the position he held at the time of his recent promotion.

Luther A. Thomas, 32, who was recently promoted to roadmaster on the Frisco at Ft. Scott, Kan. (*RT&S,* Jan., p 10), was born at Asheville, N.C., and received his higher education at The Citadel. He began his railroad career on the Southern in March 1943 at Washington, D.C. After having served in various capacities in the mechanical, accounting and maintenance-of-way departments he left the Southern and joined the Frisco in September 1955 as a student apprentice at Ft. Scott. In April 1957 he was promoted to student supervisor there and in October he was further advanced to assistant roadmaster at Sherman, Tex. At the time of his recent promotion he was serving in this capacity at Tulsa, Okla.

Association News

American Wood Preservers' Association

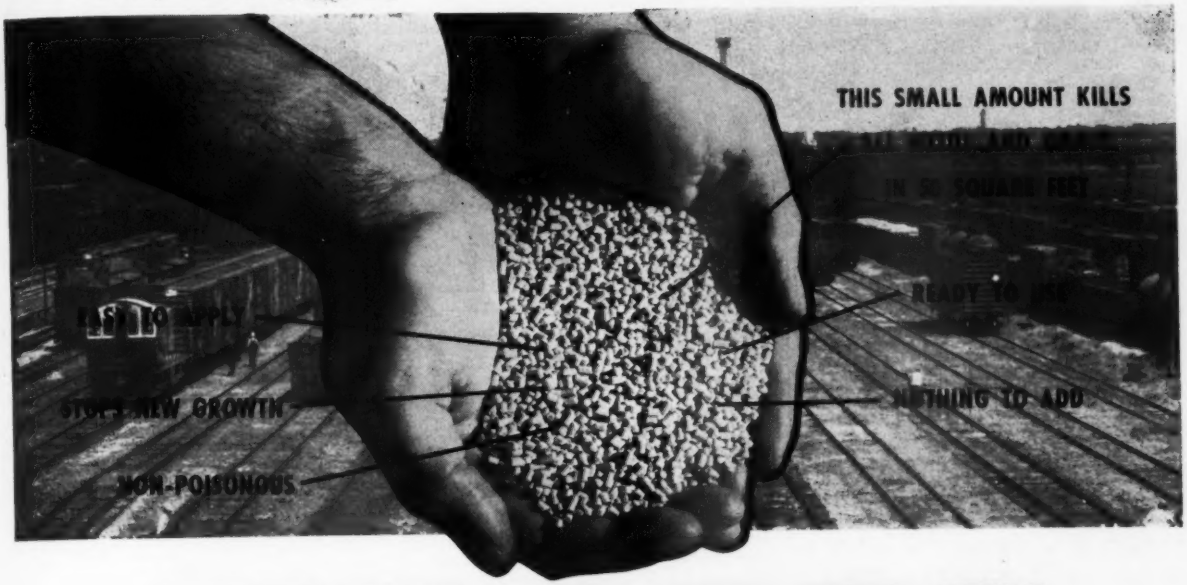
The annual meeting of the association will be held April 26-29 at the Statler Hilton Hotel, Dallas, Tex. One of the features of the program of especial interest to railroad men will be a symposium on Materials Handling. The speakers will include E. R. Snodgrass, Koppers Co., Inc., who will talk on switch ties and L. C. Collister, Santa Fe, who will discuss crossties.

Northwest Maintenance of Way Club

The next meeting of the club will be held on April 23 at the usual meeting place, the

PROVEN

WEED & GRASS KILLER



CHLOREA® GRANULAR

CHLOREA GRANULAR is a pelletized weed and grass killer. The pellets are ready for use . . . no mixing or adding of water is required. Application is easy to make with simple equipment, or by hand. These important advantages combined with powerful "kill all" effectiveness have been fully demonstrated by extensive use on many leading railroads.

Here are the important facts about Chlorea Granular:

1 Kills ALL weeds and grasses . . . stops new growth for a year or more.

2 Particularly intended for use where large scale spray application is impractical . . . such as freight yards, terminals, storage yards, under bridges and trestles, around warehouses, stations and other similar places.

3 Easy to use . . . apply with any mechanical type of granular material spreader; or broadcast by hand.

4 Low application rate . . . about 400 pounds to the acre . . . less where only annual vegetation is involved.

5 Contains 3 proven chemicals . . . this combination kills deep rooted weeds and grasses, as well as shallow rooted grasses, weeds and annual seedling growth.

SEND FOR FREE SAMPLE PACKET

CHIPMAN CHEMICAL COMPANY

World Leader in Chemical Weed Control Since 1912

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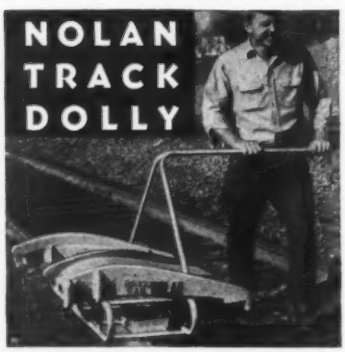


You can get rails, ties, supplies, tools, rerailers, etc., to the job with money-saving speed and efficiency, when you equip your crews with the Nolan Track Dolly.
Built of tubular high-carbon steel. Extremely strong and serviceable. Operator's handle conveniently placed to assure correct balance and full control of heavy loads.

STANDARD DOLLY

Length	Width	Ht. Above Rail	Weight
50½ in.	15½ in.	6⅝ in.	88 lbs.

INSPECTOR'S DOLLY

Length	Width	Ht. Above Rail	Weight
36 in.	14 in.	6 in.	60 lbs.

NOLAN TOOL AND SUPPLY CAR

2000 lbs. capacity. All-tubular high-carbon steel construction for safe carrying of ties, rails, supplies, etc. Car breaks conveniently in center into two sections.
Platform size 48" x 45" Ht. above rail 8" Weight 140 lbs. complete.

Write for complete railway supply catalog.

THE NOLAN COMPANY
166 PENNSYLVANIA ST., BOWERSTOWN, OHIO

Association news

Midway Civic Club, 1931 University Avenue, St. Paul, Minn.

Robert G. Lewis, publisher of *Railway Track & Structures, Railway Age* and other Simmons-Boardman publications, will deliver an illustrated lecture based on an extensive trip through the Soviet Union.

Maintenance of Way Club of Chicago

The program of the next meeting of the club, which will be held on April 27, will feature an address by D. L. Wood, chief special agent of the Illinois Central. The title of Mr. Wood's talk will be "The Life of a Cinder Dick," and will cover the work of railroad special agents.

The meeting will be held, as usual, at the Hamilton Hotel, Chicago, and will also include election of officers.

Association of Track and Structure Suppliers

Plans are progressing for the exhibition to be sponsored by this association during the conventions of the Roadmasters' and Bridge & Building Associations, which will be held in September. The exhibit will be held on Sept. 14-17 at the Coliseum, Chicago.

Invitations to participate in the exhibit were mailed to interested supply firms in January. Up to March 19 requests for 247 booths had been received from 95 companies. The total space available amounts to 276 booths

Firms interested in taking part in the exhibit should address Mr. Lewis Thomas, director of exhibits, Room 705, 59 E. Van Buren St., Chicago 5, Ill.

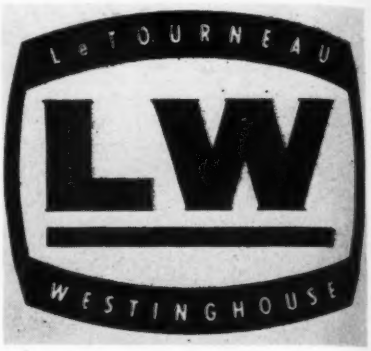
Supply Trade News

BUCYRUS-ERIE COMPANY — The following appointments have been announced: **Paul J. Thiel** as sales administration supervisor; **Byron A. Haney** as product development manager; **Frederick B. Shew** as sales development manager. Headquarters of each are at South Milwaukee, Wis.

A. M. BYERS COMPANY—Randolph R. Gustafson has been appointed a field service engineer with headquarters at Pittsburgh, Pa., according to an announcement by **J. A. Cain,** Southeastern division manager.

CHIPMAN CHEMICAL COMPANY — John T. Degman, formerly special railway representative for Oakite Products, Inc., has joined the Chipman Chemical Company, Inc., as a railway sales and service representative with headquarters at Chicago, according to an announcement by **Roger B. Coleman,** general manager of the company's railroad division.

LE TOURNEAU-WESTINGHOUSE COMPANY— A new trademark has been adopted by this company according to an announcement by **Merle R. Yantz,** president. This trademark will appear on all earthmoving, construction, logging and heavy materials-handling equipment manufactured by this firm. "We selected this particular design for its bold-



ness and simplicity," Mr. Yantz states, "which we feel carries the initial impact to put before the public the principles of the company's modern, progressive outlook to the future."

MATISA EQUIPMENT CORP.—This company has announced that construction is nearing completion on the first "fixed location" rail butt-welding plant. The plant, a 10,000-sq ft, one-story building, is located on a seven-acre tract in Summit, Ill., close to rolling mills and convenient to all railroads in the Chicago switching district.

Orders already are being taken for continuous welded rail using the Matisa Thoroweld process. In making the announcement **Robert P. Underwood,** vice-president and general manager of the company, whose office is at 1020 Washington Ave., Chicago Heights, Ill., stated that actual operations will begin this month.

MORRISON-INTERNATIONAL CORP. — This new corporation has been formed from two former divisions of the **Morrison Railway Supply Corp. George Kass,** president and treasurer of the new corporation, announces that it consists of two manufacturing divi-

FOR SALE

Several Jackson multiple tampers and one Pullman ballast cleaner complete with winch car for sale reasonably. Sold subject to inspection. Write to Box No. 459, Railway Track & Structures, 30 Church Street, New York 7, New York.

WANTED

Young track supervisor with engineering background, or engineer with track background, for Chicago area belt railroad. Unusual employee benefits, central location, wonderful future. Box No. 459, RAILWAY TRACK & STRUCTURES, 79 West Monroe Street, Chicago 3, Illinois.

BRIDGE, ANYONE?

Have two steel truss RR bridges. 248' spans, 16' width, load 4,000 lbs. 1 Lin ft. W. Preble, 2324 SW 6th, Portland, Ore.

Catch up in '59 all along your line with

AGRONYL R WEED CONTROL

Get the most from your budget with a self-application program of Agronyl R

As maintenance budgets open up, weed control deserves primary consideration. You've got to start early . . . and start right.

Each year, more and more railroads are discovering the advantages of Agronyl R. It's a unique type of herbicidal oil . . . and it has proven, over and over again, to be highly effective and truly economical.

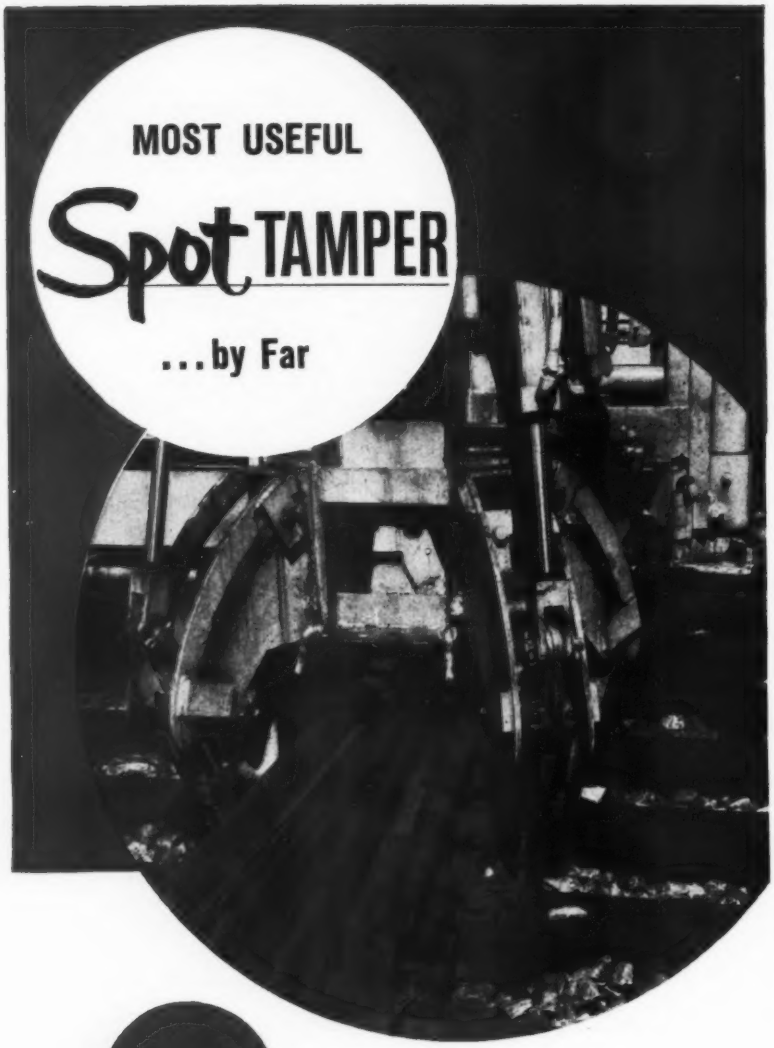
Because of its inherent structure, Agronyl R can be sprayed on weed-filled roadbeds with minimum drift. It stays where it is put, and resists wash off in heavy rains.

And, by *self-application* of Agronyl R, many railroads have cut the cost of weed control and adjusted the timing for increased effectiveness.

For complete information on the Agronyl R Weed Control Program, including usage, application data and equipment, contact Mobil Oil Company, Railroad Department, 150 East 42 Street, New York 17, N. Y., or 59 East Van Buren Street, Chicago 5, Illinois.

Mobil

RAILROAD PRODUCTS



ost useful and most widely used! That's true
three fundamental reasons: big-tamper
allast compaction . . . speed, with one man
operation . . . tools which tamp effectively
under the ties and under the rails.

Let us show you why the McWilliams Spot Tamper is reducing costs for more than 25 railroads.

Supply trade news (cont'd)

sions, the **International Car Division** and the **International Equipment Division.** Headquarters of the corporation and its divisions are at Buffalo, N. Y. **Bernard J. Yelin,** vice-president, has been appointed head of the International Car Division which will manufacture caboose cars and "campcar" mobile housing units in its shops at Kenton, Ohio. **Stanley J. Rosen,** vice president, has been appointed head of the International Equipment Division which will manufacture a line of TBA and tire display and merchandising equipment in its plant at Buffalo.

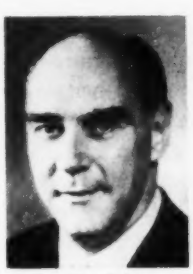
OSMOSE WOOD PRESERVING COMPANY—Robert F. McGuire, field supervisor, has been promoted to manager, right of way maintenance service, with headquarters at Buffalo, N. Y.

SCHIELD BANTAM COMPANY—Buel M. Wallis, general sales manager, has been elected vice-president—director of marketing and an officer of the company, according to an announcement by **Vern L. Schield,** chairman of the board. As head of the marketing division, Mr. Wallis is responsible for the following departments: Sales development, order bureau, service, parts, traffic, domestic and export sales.

SIMMONS-BOARDMAN PUBLISHING CORP.—Duane C. Salisbury, vice-president and director of corporate sales, has been promoted to executive vice-president. **J. W. Kizzia,** executive editor of the company's railway publications, and **M. J. Figa,** production director for all of the company's magazines, have been promoted to vice-presidents.

The company, publishers of *Railway Track and Structures,* has announced the establishment of a new Pacific Coast district, with headquarters at 1336 Wilshire Blvd., Los Angeles 17, Calif. **Bayne Sparks,** vice-president, has been appointed regional manager with headquarters at Los Angeles. He will have charge of editorial, circulation and advertising sales on the West Coast. **Dave Clark** has been appointed district manager with headquarters at 244 California Street, San Francisco. He will handle advertising sales for all of the company's publications in the new district.

UNION SWITCH & SIGNAL—Gene K. Adams has been appointed sales engineer with headquarters at the Chicago district office, according to an announcement by **C. W. Henricks,** vice-president, railway sales, of this company which is a division of Westinghouse Air Brake Company.



B. M. Wallis
Schield Bantam

R. F. McGuire
Osmose

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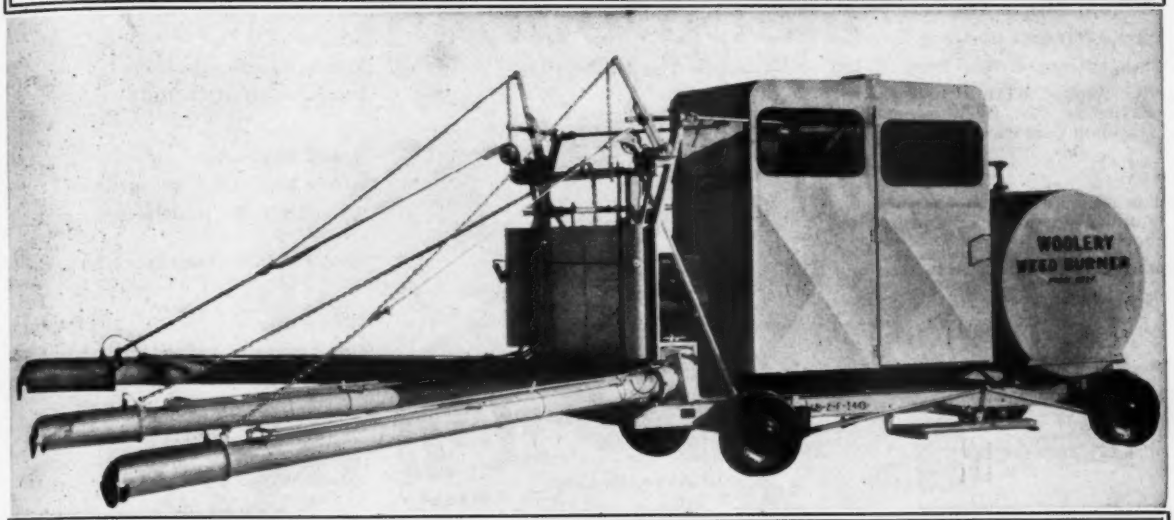

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AUTOMATIC TRANSMISSION with torque converter. All steel cab with safety glass. Two entirely separate brake systems. Outside burners can be raised, lowered, swing in or out from inside the cab . . . self-propelled by 4-cylinder, water-cooled engine. MANY OTHER NEW FEATURES.

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Allied Chemical Corp., General Chemical Division 53
American Brake Shoe Company, Railroad Products Div. 39
American-Marietta Company 22
Armco Drainage & Metal Products, Inc. 9
Austin-Western Works, Construction Equipment Div., Baldwin-Lima-Hamilton Corporation 52

Baldwin-Lima-Hamilton Corporation, Austin-Western Works, Construction Equipment Division 52
Bethlehem Steel Company 3
Bogle Company, R. H. 8

Caterpillar Tractor Co. 16
Chipman Chemical Co. 21, 59
Classified Ads 60
Cullen-Friestedt Company 41

DuPont, E. I., de Nemours & Co., Inc., Grasselli Div. 18

Esso Standard Oil Company 7

Fairmont Railway Motors, Inc. 14, 15
Flannery Products Corp. 44
Foster Company, L. B. 60

Goodyear Tire & Rubber Co. 4

Industrial Brownhoist Corp. 49

Jackson Vibrators, Inc. 51

LeTourneau-Westinghouse Company .. 58
Linde Company, Division of Union Carbide Corp. 46, 47

Mid-West Forging & Mfg. Co. 63

National Aluminate Corp. Inside Front Cover
National Lock Washer Co. Inside Back Cover
Nolan Company 60
Nordberg Mfg. Co. 56, 57

Onan & Sons, Inc., D. W. 48

Portland Cement Association 12

Railway Maintenance Corp. 62
Remington Arms Co., Inc. 50

Schield-Bantam Co. 54
Socony Mobil Oil Company, Inc. 61
Speno Frank, Railroad Ballast Cleaning Co., Inc. 6
Spray Products Corporation 63

Texas Company ..... Back Cover
True Temper Corporation 42, 43

Union Carbide Corporation, Linde Co. 46, 47
United States Borax & Chemical Corp., Pacific Coast Borax Company Division 11
United States Envelope Co. 19-20

Woodings-Verona Tool Works 55
Woolery Machine Company 63

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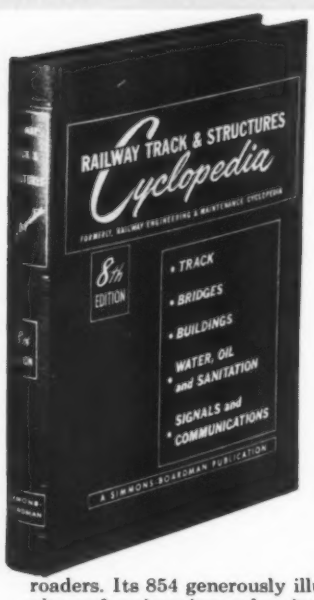

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Written by and for railroaders in cooperation with the AREA and the AAR Signal Section, this industry-accepted reference is indispensable to engineering and signaling officers, supervisors, maintenance men, purchasing agents and all other interested railroaders. Its 854 generously illustrated pages give you information on every phase of engineering and maintenance, signals and communications and other details regarding the railroads' fixed property. Six sections totalling 80 chapters include: Track; Signals; Water, Oil and Sanitation; Buildings; Bridges and a General Section. Directory of products and index of trade names in addition to general subject index.

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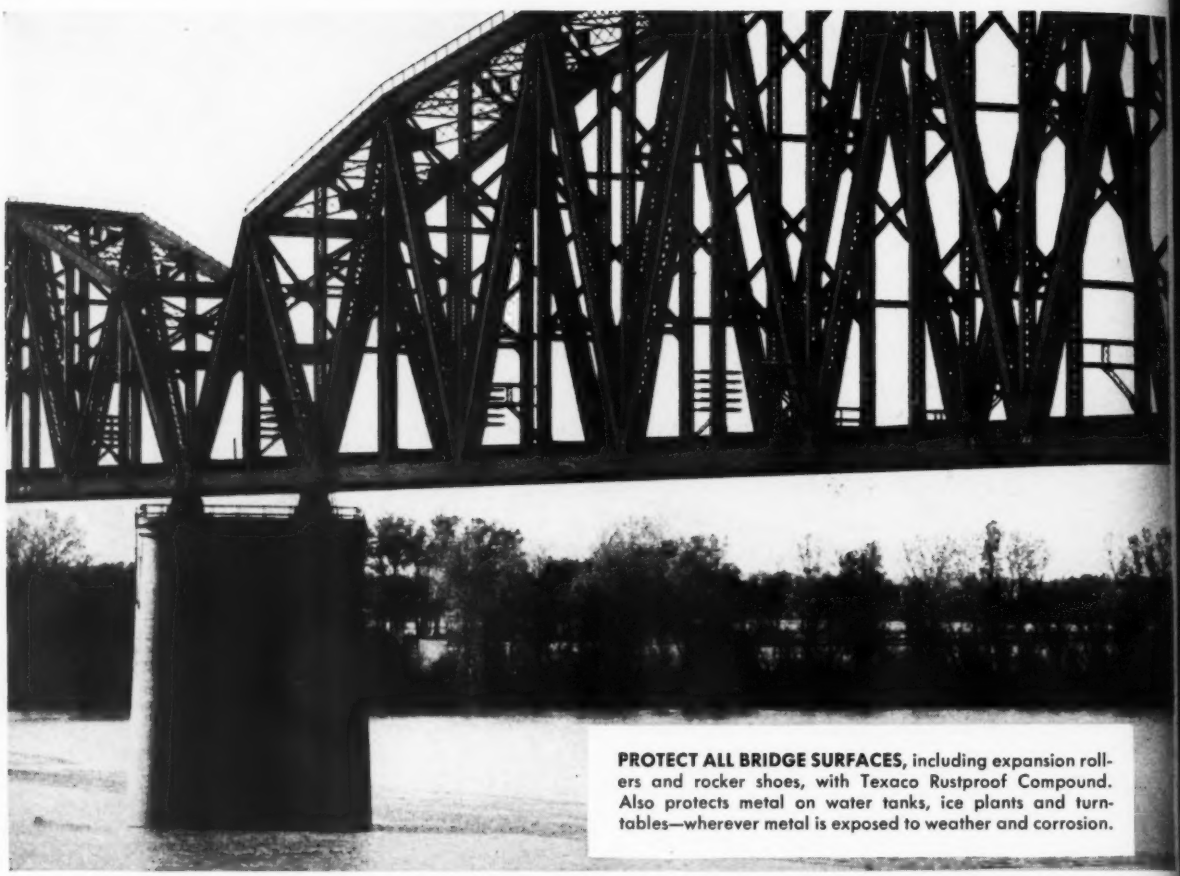

PROTECT ALL BRIDGE SURFACES, including expansion rollers and rocker shoes, with Texaco Rustproof Compound. Also protects metal on water tanks, ice plants and turntables—wherever metal is exposed to weather and corrosion.

LOST TO RUST: $100,000,000 A YEAR

Rust costs railroads $400,000,000 a year—$100,000,000 in bridges and structures alone. You can cut your road's share of this huge bill with Texaco Rustproof Compound. It gives long-lasting protection that's fast and easy to apply.

You get dependable protection with Texaco Rustproof Compound because it dries to a self-sealing weatherproof film that won't harden or crack off under vibration. This film is impervious to weather, too, and is unaffected by brine-drip, sewage, diesel exhaust and all the natural corrosive hazards of railway structures.

Minimum surface preparation

Texaco Rustproof Compound is economical to use because only a minimum of surface preparation is needed —only dirt and loose scale need be brushed off. Texaco Rustproof Compound has the ability to penetrate under existing rust and prevent further corrosion.

Easy to use

Texaco Rustproof Compound is available in a sprayable grade that cuts application time and may be used in cold weather. Four other grades are offered for brush and hot dip application. Protection for outside surfaces lasts up to three years, and bad spots can be easily touched up. To make sure you get the grade you need, just call or write your nearest Texaco Railway Sales Office. There's one in New York, Chicago, San Francisco, St. Paul, St. Louis and Atlanta.

The Texas Company, *Railway Sales Division,* 135 East 42nd Street, New York 17, N. Y.

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

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